

# Audubon

SEPTEMBER-OCTOBER 1960

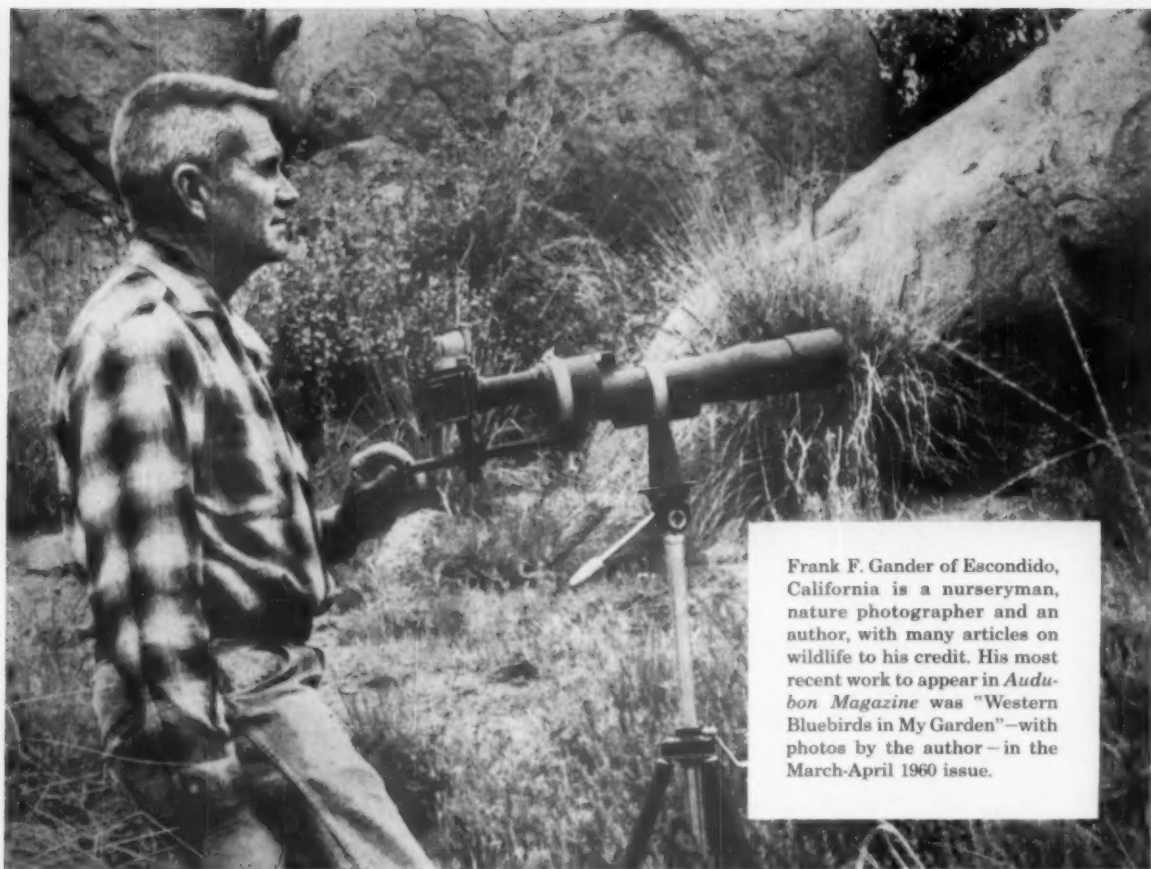
Magazine

ONE DOLLAR

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY



THE AULLWOOD AUDUBON CENTER page 226



Frank F. Gander of Escondido, California is a nurseryman, nature photographer and an author, with many articles on wildlife to his credit. His most recent work to appear in *Audubon Magazine* was "Western Bluebirds in My Garden"—with photos by the author—in the March-April 1960 issue.

## ***"Sharpness of image is vital..."***



*For sharp detail, accurate colors and fingertip focusing, there's nothing like a Balscope. And you can easily transform your Balscope into a 1000 mm. telephoto lens for any single lens reflex camera. Choose from eye pieces powered 15x, 20x or 30x. Balscope, \$115.00, Adapter with Camera Tripod, \$6.95. For additional information, write Bausch & Lomb Incorporated, Rochester 2, New York.*

**FRANK F. GANDER** says: "I find the Balscope with camera attachment an excellent means of photographing those birds and other creatures that are too timid to be enticed close in front of my camera. For such work, sharpness of image is vital just as it is in binoculars used for bird identification."

# **BAUSCH & LOMB**



*Frank F. Gander*

*Our thanks to Mr. Gander for this, the 45th in a series of endorsements of Bausch & Lomb products by recognized naturalists. All endorsements are made without remuneration.*

**MAKERS OF: BALOMATIC PROJECTORS • CINEMASCOPE LENSES • RAY-BAN SUN GLASSES  
BINOCULARS • MICROSCOPES • QUALITY EYEWEAR • RIFLE SIGHTS • SCIENTIFIC INSTRUMENTS**

*When writing advertisers, please mention Audubon Magazine*

# Audubon magazine

Volume 62, Number 5, Formerly BIRD-LORE

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY

*A bimonthly devoted to the conservation of wildlife, plants, soil, and water*

## CONTENTS FOR SEPTEMBER-OCTOBER 1960

Letters .....	198
Bird's-Eye View .....	204
by Roger T. Peterson	
Mysterious Myceteria — Our American Stork .....	206
by Alexander Sprunt, IV, and M. Philip Kahl, Jr.	
Underground Dwellers in the Forest .....	210
by Elizabeth Ingles	
The Oystercatcher .....	214
by Henry Marion Hall	
Brush Rabbits .....	218
by Frank F. Gander	
The President Reports to You .....	220
by Carl W. Buchheister	
Valley of the Fossil Insects .....	222
by Edwin Way Teale	
The Aullwood Audubon Center .....	226
by Thomas P. McElroy, Jr.	
Bird Finding with Sewall Pettingill .....	232
Wild Lily: A Rare Desert Flower .....	235
by Ida Smith	
Attracting Birds .....	236
by Alexander Sprunt, Jr.	
Book Reviews .....	244
Your Children .....	248
by Shirley Miller	
Cover: Photograph of children at Aullwood Audubon Center, Dayton, Ohio, by Bob Doty.	

John K. Terres, Editor  
Andrew Bihun, Jr., Advertising Manager • Frederick L. Hahn, Art Director

CONTRIBUTING EDITORS: Arthur A. Allen, Henry Beston, George Dack, Jr., Louis J. Halle, Jr., John Kieran, Robert Cushman Murphy, Hayden S. Pearson, Donald Culross Peattie, Roger Tory Peterson, George Miksch Sutton, Edwin Way Teale.

AUDUBON MAGAZINE is published bimonthly by the National Audubon Society. Individual subscription \$5.00 per year in U. S., its possessions, and Canada; 2 yrs.—\$9.00; 3 yrs.—\$12.00; Foreign, 1 yr.—\$5.00. Subscription rate to institutions, 1 yr.—\$4.00; 2 yrs.—\$7.30; 3 yrs.—\$10.30. Checks and money

orders should be made payable to AUDUBON MAGAZINE. Send changes of address and claims of undelivered copies to Subscription Department. Editorial and advertising office, 1130 Fifth Avenue, New York 28, N. Y. Reentered as second-class matter April 29, 1942 at the Post Office at New York, N. Y., under the Act of March 3, 1879. Copyright, 1960 by the National Audubon Society. Postmaster: If undeliverable, please notify Audubon Magazine, on form 3579 at 1130 Fifth Avenue, N. Y. 28, N. Y.

INDEXED IN THE READER'S GUIDE TO PERIODICAL LITERATURE

SEPTEMBER-OCTOBER, 1960

When writing advertisers, please mention Audubon Magazine

## Early Birder's CHRISTMAS SPECIAL



7 x 35  
Center Focus  
(with case)

Save  
\$16.50

On Japanese Grade  
A Binoculars

From now until Christmas \$59.50 + 10% excise tax. Nationally advertised at \$74.50 + tax. (We have been asked not to use this famous importer's name.)

We also offer you Bausch & Lomb, Leitz, Bushnell, and the Mirakel Special line from \$29.50 to \$39.50.

### EVERY BINOCULAR CARRIES THE "MIRAKEL OWL":

Our nationally-known workshop installs this emblem to show each instrument we offer is free of the defects often found in imported binoculars in all price ranges due to damage in shipping.



Use the handy coupon below to order this early birders' Christmas Special, or to send for FREE catalog of pre-serviced binoculars, showing 3 complete lines with quality comparison, and information on models we adapt especially for birding. It also describes our line of scopes, priced from \$54.50, each equipped with our custom-built boss to attach scope directly to tripod, and other interesting equipment.

All instruments are sold with 30-day money-back guarantee. Christmas gifts ordered now are on trial until January 10, 1961. Yes, we accept trade-ins.

FREE binocular articles written by us for Audubon Magazine will be sent to you with your catalog.

WRITE THE REICHERTS for assistance on all binocular and scope problems. Individual inquiries will be answered personally and promptly.

Serving Birders since 1923

**Mirakel Optical Co., Inc.**

14 W. First St., Mt. Vernon 2, N. Y.  
MO 4-2772

Open Saturdays 10-4 in December  
Other Saturdays 10-1, or by appointment.

Mirakel Optical Co., Inc.  
14 West First St., Mt. Vernon 2, N. Y.

- ☐ Send Early Birder's Christmas Special 7 x 35 as shown above (saving me \$16.50 on regular price.)
- ☐ I enclose \$59.50 + 10% tax; total \$65.45.
- ☐ Bill me.
- ☐ Send catalog with Audubon reprints.

Name.....  
Street.....  
City.....State.....

## Your Membership supports this work



**Audubon Junior Clubs**, in which more than ten million children in schools and youth groups have been enrolled since 1910.

**Audubon Camps**, for training adults in Nature and Conservation at Medomak, Maine; Greenwich, Conn.; Norden, Calif.; Sarona, Wisconsin.

**Audubon Centers** for children show young and old the wonders of the natural world and our relationships to it: Audubon Center of Connecticut, Riversville Road and John Street, Greenwich, Connecticut. Aullwood Audubon Center, 1000 Aullwood Road, Dayton 14, Ohio. Audubon Center of Southern California, 1000 North Durfee Avenue, El Monte, California.

**Audubon Screen Tours**, lectures and color motion pictures of which 1,800, given by 30 lecturers, reach an audience of 50,000 people a year in some 200 cities.

**Audubon Wildlife Tours**, to Corkscrew Swamp Sanctuary, Florida, and into the Everglades National Park, under the direction of trained naturalists.

**Branches and Affiliates** of the National Audubon Society advance our work in more than 300 communities.

**Photo and Film Department**, from which rights to reproduce photographs and slides can be purchased, slides may be bought, and educational films rented.

**Service Department**, through which advice as to nature books, prints, bird, flower, and mammal cards, binoculars, etc., may be obtained, and such items purchased.

**Research Projects**, especially for species threatened with extinction.

**Your Will:** May we suggest that you help to insure the continuance of the ever-widening influence of our program and philosophy by remembering the National Audubon Society in your will. Suggested bequest form: I hereby give, devise, and bequeath to the National Audubon Society, in the City of New York, in the State of New York, the sum of ..... dollars (or otherwise describe the gift) to be used for the general purpose of said Society.

**Directors:** Mrs. John W. Aull, Kenneth K. Bechtel, Amory H. Bradford, Ernest Brooks, Mrs. John W. Donaldson, Whitney Eastman, Mrs. Richard V. N. Cambrill, Robert G. Golet, Mrs. Henry B. Guthrie, Robert J. Hamerslag, Lawrence W. Lowman, Dudley H. Mills, Herbert H. Mills, Roger T. Peterson, Olin S. Pettingill, Jr., Chauncey Stillman, Phillips B. Street, James H. Wickersham.

**Officers:** Robert J. Hamerslag, *Chairman of the Board*; Herbert H. Mills, *Chairman, Executive Committee*; Guy Emerson, Robert C. Murphy, and Paul B. Sears, *Honorary Presidents*; John H. Baker, *President Emeritus*; Carl W. Buchheister, *President*; Irving Benjamin, *Vice-President*; Ernest Brooks, *Secretary*; Robert G. Golet, *Treasurer*; George Porter, *Assistant Treasurer*; Shirley Miller, *Assistant Secretary*.

**Regional Offices:** Tropical Florida, 143 N.E. Third Avenue, Miami 32, C. M. Brookfield, representative, Elizabeth C. Wood, office manager; Pacific Coast, 2426 Bancroft Way, Berkeley 4, California, William N. Goodall, Pacific Coast representative, Mary Jeffers, office manager.

**Public Information Department**, services members, and furnishes the press, TV, and radio with information about nature and conservation.

**Publications:** Audubon Magazine, sent to all members: Audubon Field Notes (\$3.00 a year), publishes results of bird watching, including seasonal reports and bird censuses; Nature Program Guide, Audubon Junior News, and Audubon Nature Bulletins are for teachers and youth leaders.

**Sanctuaries.** The National Audubon Society's wardens patrol upwards of 1,000,000 acres of land and water including Audubon Center, Greenwich, Connecticut; Holgate Peninsula Sanctuary, Beach Haven, New Jersey; Hunt Hill Sanctuary, Sarona, Wisconsin; Rainey Wildlife Sanctuary, Abbeville, Louisiana; Roosevelt Memorial Sanctuary, Oyster Bay, Long Island; San Gabriel River Wildlife Sanctuary, El Monte, and San Francisco Bay Sanctuaries, California; Todd Wildlife Sanctuary, Hog Island, Maine; Corkscrew Swamp Sanctuary in Florida; and other extensive areas in Florida and Texas.

**Your Membership** will advance public understanding of the value and need of conservation of soil, water, plants, and wildlife, and the relation of their intelligent treatment and wise use to human progress.

Regular .....	\$6.50	Active ....	\$ 25.00
Husband and Wife		Supporting..	50.00
Regular ....	10.00	Contributing	100.00
Sustaining ....	12.50	Life .....	300.00
Husband and Wife		Affiliated	
Sustaining .....	20.00	Clubs ...	15.00
Membership includes	Audubon Magazine		

## Letters

### Applause for "Nature and Man"

This is just a note to say that I think the article by Daniel McKinley, "Nature and Man: The Two Faces of Management," is one of the finest things you have ever published. The philosophy he expresses places him among those whose thinking must be widely understood and accepted if man's senseless war against his environment — and against himself — is to cease.

RACHEL L. CARSON

West Southport, Maine

**Editor's Note:** Miss Carson, author of "The Sea Around Us," "The Edge of the Sea," and other books, needs no introduction to our readers. Besides being a fine writer and a scientist, Miss Carson is an ardent conservationist.

Congratulations on publishing Dan McKinley's "Nature and Man." It is a trenchant exposition of the appalling situation facing us in our country and in the world in general. The population explosion is by far the most urgent and menacing problem confronting us.

It would be a fine contribution to nature preservation if you would reprint this notable article and offer it at low cost.

MARGARET M. NICE

Chicago, Illinois

**Editor's Note:** Mrs. Nice is an eminent ornithologist, noted in particular for her studies of the song sparrow and subsequent publication of its life history in two volumes that won her the Brewster Medal in 1942. She is a fellow of the American Ornithologists Union, and an internationally known scientist, educator, and conservationist.

The article, "Nature and Man," by Daniel McKinley, is very good indeed. I am glad to see it published in Audubon Magazine. There is no longer any point of hiding the truth under an easy cloak of optimism. Thank you very much.

FRANCIS L. JAKES

Saint Paul, Minnesota

**Editor's Note:** Mr. Jakes is the well-known artist and illustrator whose paintings and drawings of birds and other wildlife have illustrated many fine books about natural history and conservation.

I'm particularly impressed with the article in the May-June number of

Turn to page 200

AUDUBON MAGAZINE





**AVAILABLE**  
For the First Time

This perfectly matched combination is a must for every birder

Save \$7.95 on this SPECIAL

## INTRODUCTORY OFFER

Complete outfit . . . Burton Model SS1-Spotting Scope. Burton Scope-Stock and Leather Sling Strap. **\$57.45**

Burton Scope Stock **\$17.95**  
Leather Sling Strap **\$2.50**



Designed and tested by one of the top ornithologists in the United States, MILTON B. TRAUTMAN, Ohio State Univ.

### SPECIFICATIONS

Objective	Eyepiece	Field at 1,000 yds.	Exit Pupil	Relative Brightness	Length	Weight
60MM	15X	122 ft.	4.0mm	16.0	14 in.	29 oz.
60MM	20X	122 ft.	3.0mm	9.0	14 in.	29 oz.
60MM	30X	61 ft.	2.0mm	4.0	14 in.	29 oz.
60MM	40X	49 ft.	1.5mm	3.0	14 in.	29 oz.
60MM	60X	32 ft.	1.0mm	1.0	14 in.	29 oz.

**Burton Model SS-1 Spotting Scope \$44.95**

Extra eyepieces, each \$4.00

Precision, durable aluminum construction. Finest optics, hard coated for maximum illumination and sharpness of image. 5 year guarantee.

"I prefer Burton Binoculars because of their high quality and low cost"

#### OHIO STATE UNIVERSITY

Of the many binoculars on the market today I prefer Burton binoculars because of their high quality and low cost. A Burton binocular will give a lifetime of satisfactory service.

*Donald J. Borror*  
Donald J. Borror  
Prof. of Ecology & Entomology

#### The Ohio Historical Society

They have a wider field of view. They're light in weight for ease of handling, yet rugged enough to stand up under hard use on long trips. They keep a sharp focus.

*Edward S. Thomas*  
Edward S. Thomas  
Curator of Natural History

## Professional Ornithologists Use Burton Binoculars . . . Why Shouldn't You?



**7x35 cf fwf**

with Cowhide case

**\$65.00** Plus 10% Fed. Tax

**7x35 cf**

with Pigskin case

**\$33.25**

Plus 10% Fed. Tax

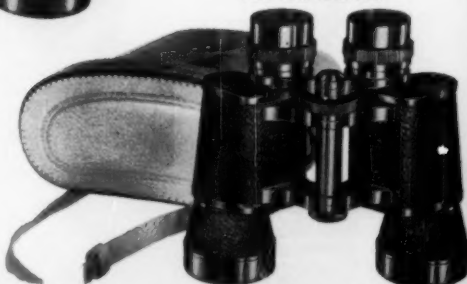
#### BURTON BINOCULARS

15 Other models to choose from

- 5 Year Written Guarantee
- Lifetime Service Plan
- 30 Day No Risk Trial

#### BURCO "Trailblazer" Binoculars

6x30 cf	\$29.50
7x50 cf	\$37.50
10x50 cf	\$44.50



If not 100% satisfied your money refunded in full

Send for FREE Burton Binocular Guide Catalog and name of your local Dealer



**The R. H. Burton Company**

2504 Sullivant Avenue

Columbus, Ohio

## ENJOY ARIZONA WILDLIFE

Furnished housekeeping units in the Chiricahua National Monument—\$30, \$40 weekly for two; day and month rates also. A most rewarding area for birders: approximately 240 species, some quite rare. Also rich in other wildlife, geology, botany, and history. Gentle horses for trail riding. Address: Faraway Ranch Cottages, Dos Cabezas, Arizona

## Binocular Headquarters



Bausch & Lomb  
Bushnell  
Kern Swiss  
Kowa and  
others

### ALL TYPES AND PRICES

Accessories, repairs, Telescopes

### HIGHEST TRADE-INS

On your old Binoculars or Telescope

Postpaid by a Museum Curator,  
an active field ornithologist.

**Bartlett Hendricks**

Pittsfield 50-A, Mass.  
phone HI 7-9748

*Audubon Magazine* entitled, "Nature and Man," by Daniel McKinley. I'm wondering whether you're going to have reprints made of this, because if so, we should certainly like to obtain a number for distribution.

C. RUSSELL MASON

Maitland, Florida

**Editor's Note:** Mr. Mason, formerly Executive Director of the Massachusetts Audubon Society, is a well-known conservationist. He is now Executive Director of the Florida Audubon Society, and editor of *The Florida Naturalist*.

I have never read a more thought-stimulating and profound article than "Nature and Man," by Daniel McKinley. Congratulations on obtaining this essay for publication in *Audubon Magazine*! I respectfully suggest that it be published in pamphlet form that it may have even a wider reading.

MRS. C. R. MORRIS

Centerbrook, Connecticut

I have just read the article, "Nature and Man," in the May-June issue of *Audubon Magazine*, and I consider it one of the finest documents on man and his environment that I have ever read.

I have long felt that there is something totally inadequate about present

"wildlife management" and conservationist approaches, and Mr. McKinley has expressed the basic problem succinctly and with fervor.

I am grateful to *Audubon Magazine* for publishing the article, but its readers are, for the most part, the people who are already with you. How are we going to reach those who need to be reached—the "despoilers"—and harder yet, how are we going to convince them before it is too late?

To me it seems hopeless—and I find short-range solace by going off, whenever I can, to fast-diminishing areas of undisturbed nature . . . and by writing protest letters to newspapers and congressmen, with feeble results.

MISS PHYLLIS J. THOMAS

Los Angeles, California

Thank you for Mr. McKinley's wonderful article, "Nature and Man: The Two Faces of Management." Mr. McKinley makes so much sense and expresses so ably what many people, who care about this world, must be thinking.

STEPHANIE DAYWALT

Santa Monica, California

I think *Audubon Magazine* gets better all the time, and that is a hard record to beat. I wonder if the article in the May-June 1960 issue, "Nature and Man," will be available in pamphlet form? There are those of us who would be interested in circulating it.

MRS. HENRY M. HERMANNS

Ardley, Pennsylvania

**Editor's Note:** We are reprinting the article, "Nature and Man," by Daniel McKinley, and reprints will be available after September 1, 1960. They may be ordered from our Service Department.

Turn to page 202

## TAPE IT ANYWHERE

with



### AS PORTABLE AS A CAMERA

A true-fidelity portable with super-sensitive microphone that permits the recording of bird sounds anywhere—anytime. No waiting—you're ready to record and play back instantly. Use Phono Trix in office, home or car, too. It's ideal for businessmen, students, professional men, servicemen, clergymen—and for family fun. Quality-built for years of pleasure and usefulness.

### FASCINATING ACCESSORIES ALSO AVAILABLE

Telephone pick-up and amplifier \$8.95

Stethoscope earphones 8.95

AC adapter 19.95

Dept. A  
MATTHEW STUART & CO., INC.,  
156 Fifth Avenue, New York 10, N. Y.

### GENTLEMEN:

Please send me full details on Phono Trix, and the name of my nearest dealer.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

- 50 hours playing time on 4 flashlight batteries
- Uses standard 3" tape—gives up to 90 minutes recording time
- Weighs 5 pounds; size: 9" x 5" x 4 1/4"



In luxurious scotch-grain leather case complete with microphone, reels and tape.

**99<sup>95</sup>**  
**MARK III**

When writing advertisers, please mention Audubon Magazine

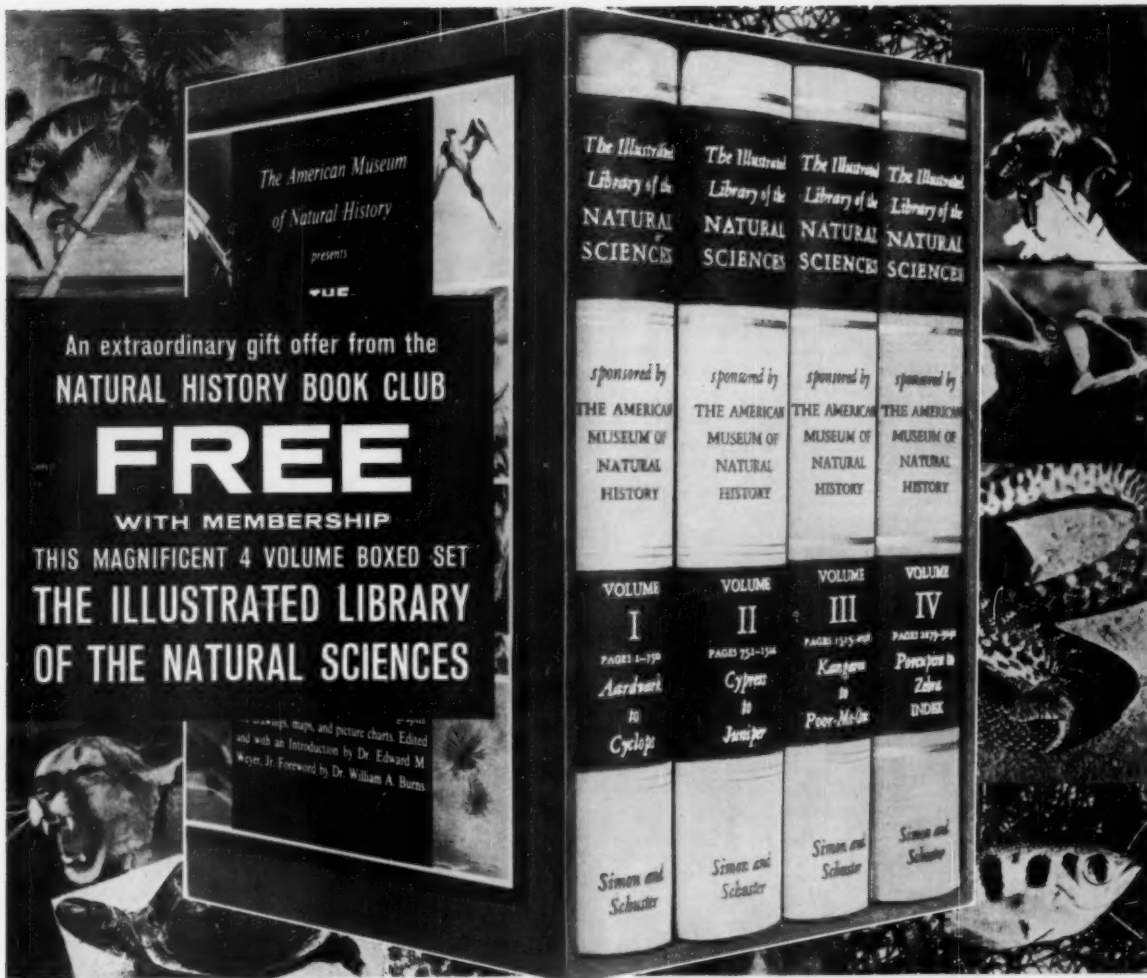
## Audubon Convention—1960

The 56th Annual Convention of the National Audubon Society, with its branches and affiliated societies, will be held in New York City, Saturday, October 29 to Tuesday, November 1, inclusive. Headquarters will be at Audubon House, 1130 Fifth Avenue. Members and member groups should receive the convention program early in October. The convention will end with the annual dinner on Tuesday evening, November 1.

### Nominations

The official Nominating Committee for directors of the National Audubon Society, consists this year of Mr. R. Gordon Wasson, Mr. Wheeler McMillen, and Dr. Paul B. Sears (Chairman). If any member wishes to submit suggestions to the committee, a letter may be directed to Dr. Paul B. Sears, Department of Conservation, Yale University, New Haven, Connecticut.

AUDUBON MAGAZINE



Published at **\$25<sup>00</sup>**

under the sponsorship of  
The American Museum of Natural History

- OVER ONE MILLION WORDS
- MORE THAN 3,000 PAGES
- OVER 3,000 ILLUSTRATIONS
- 165 DISTINGUISHED CONTRIBUTORS

A breathtaking panorama of knowledge in every area of natural science—from anthropology to zoology, from aardvark to zebra. The famous contributors include Marston Bates, William Beebe, Arthur Clarke, J. Frank Dobie, Willy Ley, Donald Culross Peattie, T. C. Schneirla, Edwin Way Teale, and many others.

#### CHOOSE YOUR FIRST SELECTION FROM AMONG THESE SIX IMPORTANT BOOKS

**90° SOUTH**, by Paul Siple. The dramatic story of the building of the American base at the South Pole—and of the first men to winter at the bottom of the world—told by the leader of the IGY expedition. 34 photographs, 14 in full color.  
LIST PRICE \$5.75, Member's Price \$4.95

**THIS SCULPTURED EARTH**, by John A. Shimer. A brilliantly written natural history of the earth's surface, from the Pre-Cambrian Age to the present. "A model of how to communicate science." *The New York Times*.  
LIST PRICE \$7.50, Member's Price \$5.50

**THE LIVING FOREST**, by Jack McCormick. "A remarkably attractive book packed with a remarkable amount of material on trees and forests." *Los Angeles Herald & Express*. 137 illustrations.  
LIST PRICE \$3.95, Member's Price \$3.50

**WILDLIFE IN AMERICA**, by Peter Matthiessen. Nearly 200 spectacular photographs and drawings help describe "what has happened, what is happening and what is likely to happen to the wildlife of North America." *Edwin Way Teale*.  
LIST PRICE \$10.00, Member's Price \$5.95

**ANIMAL BEHAVIOR**, by John Paul Scott. "Head and shoulders above all other books in the field." *Natural History*. "Clear, simply written and unfailingly interesting." *Scientific American*.  
LIST PRICE \$5.00, Member's Price \$4.25

**A TREASURY OF SCIENCE**, edited by Havelock Shapley. Revised, enlarged 4th Edition—789 pages—of the famous panoramic presentation of science. "A distinguishing anthology, painstakingly presented." *Science*.  
LIST PRICE \$6.95, Member's Price \$5.50

For the most readable and informative books in the natural sciences, you are invited to join the Natural History Book Club—and to accept as a welcoming gift the magnificent four-volume set illustrated above. Membership in the Natural History Book Club provides a fascinating and rewarding way to keep abreast of science's continuing discoveries about the origin of the Earth and its composition; the incredible variety of vegetation, insects, fishes, reptiles and mammals found on it; and the evolution of man himself from primitive savagery to the complex civilizations of today. From anthropology to meteorology, from oceanography to zoology, the Natural History Book Club offers you the latest and most important works by leading authorities in the major areas of the natural sciences—always at substantial savings.

To join now and receive *The Illustrated Library of the Natural Sciences* free, simply choose the volume you want as your first Selection from those described below. As a member you need purchase only three additional Selections at reduced Member's Prices during the next 12 months. You will also receive a valuable free bonus book with every fifth purchase.

#### THE NATURAL HISTORY BOOK CLUB 63 Fourth Avenue, New York 3, N. Y.

H-47

Please enroll me as a member and send, as a Membership Gift, **THE ILLUSTRATED LIBRARY OF THE NATURAL SCIENCES**, along with my first Selection at the reduced Member's Price. My only obligation is to take three more Selections during the next 12 months; I will receive a free Bonus Book with every fifth purchase.

First Selection \_\_\_\_\_

Additional Selection Desired \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_





One of the most thrilling events in the experience of many birders is that moment when a new bird is seen, whether it is the fiftieth or five hundredth in his life list. It is to provide a means of recapturing these moments that this book was designed.

## Birder's Life List and Diary

Lists over 600 North American birds, with space for entering your own annotation. Over 150 pages, attractively bound, durable, latest nomenclature 6" x 9"—\$1.75 plus 20¢ postage.

ROY & BETTY DIETERT  
Box 582, Allendale, N. J.

# NOW... 1/2 SIZE!



Conventional  
400mm tele-lens

NOVOFLEX  
400mm lens  
(nesting position)



# NOVOFLEX

nesting type

## TELE-LENSES

Now... it's a cinch to carry 400mm, and even 600mm tele-lenses. By a unique and precise nesting principle, the size of the 400mm has been cut right in half, and should you desire, you can instantly replace the 400mm head with a compact, lightweight 600mm lens head. By thus eliminating cumbersome size and weight, it is now practical for you to carry long lenses, and get those dramatic shots you've always wanted. Highest optical and mechanical performance guaranteed!

AVAILABLE FOR ALL 35mm SINGLE LENS REFLEX CAMERAS WITH FOCAL PLANE SHUTTERS (or reflex housings). SEND FOR LITERATURE.

**BURLEIGH BROOKS, INC.**  
420 Grand Avenue, Englewood, New Jersey  
CHICAGO HOLLYWOOD

## Oystercatchers Nesting in New York

On June 6, 1960 we discovered a pair of oystercatchers feeding at water's edge on one of our nearby islands. We returned to the island three days later and found them feeding in the same spot. We reported this to Mr. Leroy Wilcox, who is our local bird-bander. He and his assistant, Walter Terry, visited the island on June 10 and located a nest with three eggs. We did well to keep this interesting secret—known to six people—for the next three weeks.

On Saturday, July 2, one egg was hatched and the other two pipped. On July 3, Mr. Wilcox banded Baby #1. On July 4, he banded the second, and later the third.

Meantime both Mr. Wilcox and my husband got pictures of the eggs in the nest and later of the newly-hatched birds. We found that the youngsters were running about freely within 48 hours.

On Thursday evening, July 7, both mother and babies had left the nest and the male was feeding on the beach. We are still anxiously waiting, hoping to see the young reach maturity. This record has already made bird history—as no oystercatcher has been reported for 100 years as hatching young in New York State. This was reported to me by Mr. Wilcox. He has access to quite complete records.

MRS. C. M. PORTER

Center Moriches, L. I., New York

## Comment

As far as we know, this is a northward extension of the breeding range of this species. We call your attention to the article about the American oystercatcher on page 214 of this issue.—THE EDITOR

## A Marmot Eats Auto Grease

In his article, "Wild Animals Are Individuals" (*Audubon Magazine*, November-December 1959), Mr. Irving Petie

tells about a case of deer licking grease from the fittings of a tractor. This reminds me of an observation I made while visiting Glacier National Park in June 1957.

My car was parked at one of the several lookout turnoffs along the "Garden Wall" while I watched other tourists feeding marmots and ground squirrels—hoary marmot, *Marmota caligata*, and Columbia ground squirrel, *Citellus columbianus*. The marmots were quite tame and "sitting up" begged for tidbits, which they readily took out of the tourist's hands (although such intimacies are frowned upon by the National Park Service). One individual crawled under my car. Going down on my hands and knees to see what it was up to, I found it licking grease off the steering linkage joints. This marmot was a determined animal: nothing less than a continuous drumming of my hands against the hood and fender would chase it from under the vehicle when I finally had to leave to continue the trip.

I wonder what it is that these animals like about automotive grease? It would be interesting to know whether any of your readers made any similar observations.

SERGEJ POSTUPALSKY

Warren, Michigan

## Albino Evening Grosbeak in Tennessee

In reply to Mr. Richard A. Almy's request for information about albino evening grosbeaks, published in your "Letters" of the May-June 1960 issue, I had one at my feeders from February 17 to April 10, 1960. It appeared only during fog or mist, did not associate with the flock of other evening grosbeaks, and fed as far from the house as possible. I thought it was a male. The white feathers were white, the black feathers were oyster white and only his neck had any color—cream. I never

## NEW! FIELD GUIDE CARRIER

THE CONVENIENT WAY TO CARRY YOUR GUIDES FOR FAST REFERENCE!

- ★ Holds TWO Standard Size Field Guides
- ★ Handy Pencil Slot
- ★ Large Pocket for Lists and Field Notes
- ★ Easy to Open Gripper Snap Closure
- ★ Made of quality tan duPont FABRILITE



Protects valuable field guides from rain and soil! Attach it to your belt or carry it over your shoulder.

**FIELD GUIDE CARRIER**  
only \$3.95 ppd.  
Adjustable  
Shoulder Strap  
only \$1.00 ppd.



NEW! Peterson's FIELD GUIDE TO BIRD SONGS!  
Two 12" LP records—over 300 songs—\$10.95 ppd.

**OB Enterprises • Box 21 • Celina 6, Ohio**

Inquire about special rates for Nature Clubs, Colleges and Bookstores

## IDENTIFY BIRDS FASTER !!

Index your Peterson Guides with

**BIRD GUIDE INDEX TABS**

Easy to Install  
Plastic Coated • Neat  
Easy to Read

For Eastern, Western or  
British Peterson Guides

Only 50¢ per set, ppd.

Protect your Peterson  
Guides with Transparent

**PLASTIC FIELD GUIDE JACKETS**

Waterproof • Durable • Dirtproof

Only \$1.00 each ppd.

Moneyback Guarantee on all Products—Free Literature



# APOLOGY TO OUR READERS

It was of considerable embarrassment to us, and of great annoyance to many of the readers of *Audubon Magazine*, that the May-June 1960 issue did not reach many members and subscribers until late June, and some did not receive it until late July! The magazines were delivered from our New York City bindery to the Post Office for mailing on or about May 16. Apparently something happened in the postal department to cause the delay, but we have not yet been able to pin down the reason for it. We apologize to every one of our readers who received the May-June issue any later than May 30. If any members or subscribers did not receive the May-June issue, please write to Subscription Department and we will forward your missing copy.

—THE EDITOR

could see the color of his eyes. This winter was our first record of evening grosbeaks, though we wonder if they may not have been here before and no one has noticed them.

MRS. MARY WILLINGHAM  
Signal Mountain, Tennessee

## George Washington's River SOUND FILM • 28 MIN.

Shocking story of polluted water  
in and about our Nation's Capital

**Film Rental \$7.00**

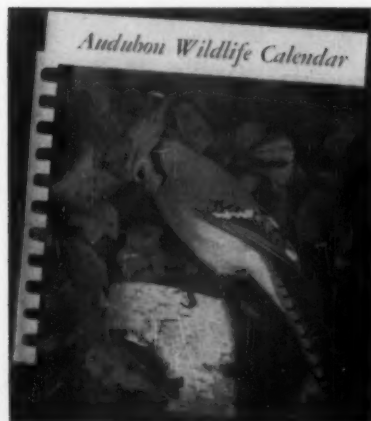
Plus 50¢ service charge

PHOTO AND FILM DEPT.  
National Audubon Society  
1130 5th Ave., New York 28, N. Y.

## 52 Week Calendar

FOR 1961 • FULL COLOR COVER

National Audubon Society Photographs  
in black and white throughout.



**\$1.50 from**  
**NATIONAL AUDUBON SOCIETY**  
1130 5th Ave., New York 28, N. Y.



## Trapp Family Lodge Stowe, Vt.

Enjoy Gorgeous Fall Foliage! Home of the famous Trapp Family on whose life the current musical, "The Sound of Music", is based. Restful atmospheric chalet. Panoramic scenery. Hearty Austrian-American meals. \$9.00 up American. FOLDER. Tel. Stowe, Vermont, ALpine 3-7545.



Color choices Terra  
Cotta on spice  
background.

Powder blue on  
navy.

Ivory on gold.

9 1/2" x 10"

Custom made.

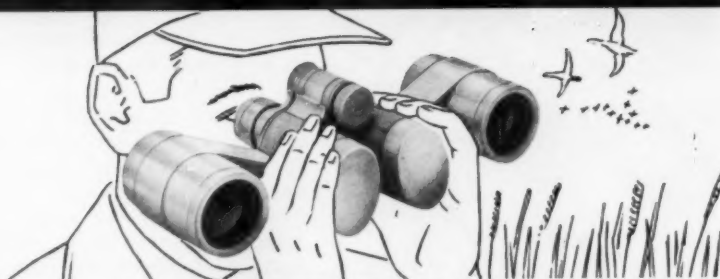
Signed by the

sculptor.

**\$10** Postpaid U.S.

**Bas-relief portrait of  
JOHN JAMES AUDUBON**  
by Warner Williams, N.S.S.

**THE PERFECT BIRD LOVERS' GIFT**  
Sculpture-Decor, Culver, Indiana

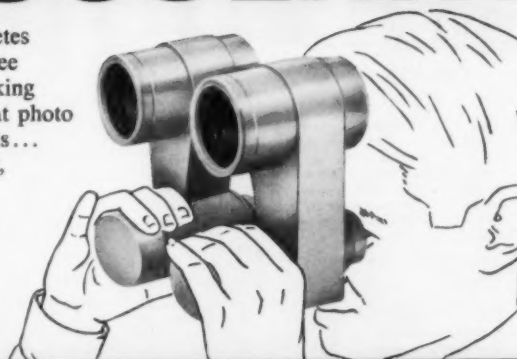


**WORLD'S FIRST and ONLY**

# STEREOSCOPIC-PERISCPIC BINOCULAR!

Amazing new RISO obsoletes  
conventional binoculars! See  
distant objects in breathtaking  
3-dimension. Ideal for that photo  
finish! Perfect for all sports...  
including boating, hunting,  
birdwatching!

Swing the lenses together  
...you're comfortably  
above the crowd  
at stadium or  
racetrack!



THE UNPRECEDENTED

**riso** 7 x 40 **binocular**

ONLY \$145, complete with case

at fine stores—for literature, write to

**SCOPUS, INC.** 404-A Park Avenue South, New York 16, N. Y.

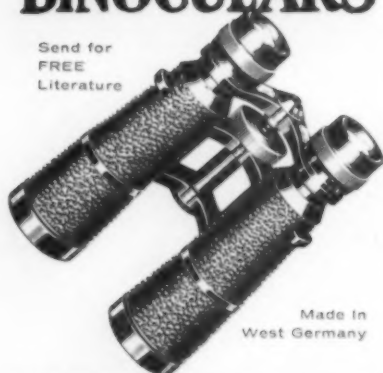
When writing advertisers, please mention Audubon Magazine

# handy

20-26 OZ.

## economical roof prism HENSOLDT BINOCULARS

Send for  
FREE  
Literature



Made in  
West Germany

CARL ZEISS, INC. 485 FIFTH AVE. • NEW YORK

## Get UNITRON's FREE Observer's Guide and Catalog on ASTRONOMICAL TELESCOPES

This valuable 38-page book  
is yours for the asking!

With artificial satellites already launched and space travel almost a reality, astronomy has become today's fastest growing hobby. Exploring the skies with a telescope is a relaxing diversion for father and son alike. UNITRON's handbook contains full-page illustrated articles on astronomy, observing, telescopes and accessories. It is of interest to both beginners and advanced amateurs.

### Contents include—

- Observing the sun, moon, planets and wonders of the sky
- Constellation map
- Hints for observers
- Glossary of telescope terms
- How to choose a telescope
- Amateur clubs and research programs



# UNITRON

INSTRUMENT DIVISION of UNITED SCIENTIFIC CO.  
204-206 MILK STREET • BOSTON 9, MASS.

Please rush to me, free of charge, UNITRON's new Observer's Guide and Telescope Catalog. . . .

Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

## Roger Peterson's BIRD'S - EYE VIEW

### Japan's Glamour Birds

On the very day (June 10) that Carl Buchheister, president of our society, and Jack Livingston, president of the Audubon Society of Canada, were woods-walking in the New Forest in England, other Audubonites halfway around the world were making the acquaintance of Japanese birds.

The New Forest foray, participated in by a platoon of eminent British and North American bird-watchers, was held in the memory of a similar walk, 50 years earlier,\* when Lord Grey and Theodore Roosevelt ticked off the chaffinches and willow warblers while the two statesmen strolled beneath the ancient oaks. The Japanese walk in Hokkaido, Japan's northernmost island, was without similar precedent, for this was the first time an international bird-protection meeting had ever been held anywhere in Asia. There is no question that Japan leads all other Asian nations in its devotion to the conservation ethic. Nature has been deeply rooted in national culture for centuries. Recently this hereditary interest has evolved from the purely esthetic to the scientific, and inevitably when scholars contemplate the handiwork of nature they become conservationists.

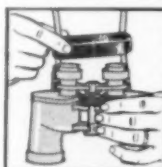
Reviewing the history of Audubon activity in America, we find that the long-legged wading birds—the herons, egrets, cranes—have received more attention than most other groups of birds. So have they in Japan. Tens of thousands of decorative prints and screens have glorified these glamorous birds. So it is no surprise to find that on the well-watered plains of Honshu and other parts of Japan the herons and egrets are an integral part of the landscape.

The Sunday before the conservation meetings started, two busloads of delegates journeyed some miles beyond the sprawling suburbs of Tokyo into the rural lands of the Quanto Plain, where a heronry had been designated a Nature Monument. Three hundred years ago the shoguns journeying from the ancient

\* See "Nature in the News," Audubon Magazine, July-August 1960.—The Editor

capital of Kyoto to Tokyo were impressed by the great number of white herons that converged from all points of the compass into the small grove of trees that grew virtually in the center of a small farm village. By edict, the shoguns instructed the villagers to guard the birds. Today the townspeople are very proud of their custodianship of

Scenic-Bird & Fishing Trips  
CABIN CRUISER  
*Spoonbill*  
CAPT. ART EIFLER  
P.O. Box 82, Everglades, Florida



### Protect Your Binoculars with BINO-CAPS

- Keeps lenses free from dust and rain
- Top grain leather construction
- Attaches to neck strap
- Felt lined lens protector
- Fits in binocular case, FITS EYECAPS up to 1 1/2" in diameter.

ORDER TODAY—\$1.98 ppd.  
—Money Back Guarantee—  
OB Enterprises  
Box 24Y Leona, Ohio

### Audubon Member Special! THE SPORT-A-MATIC The Most Comfortable BIRD WATCHING SEAT Ever Built!

Made of Sturdy, Lightweight  
ALCOA ALUMINUM!



Only  
**\$995**

P.P. Prepaid

Send Check or  
M.O. Sorry,  
No. C.O.D.'s.

Ask About  
Special Discounts  
on Group  
Orders!

### THE PORTABLE SPORTSEAT

The only Portable Sport-Seat  
that Opens Automatically with a  
Flick of the Wrist!

If you're not delighted with your  
SPORTSEAT, return it within 10  
days and get a FULL REFUND.

- LIGHTWEIGHT & EASY TO CARRY — Weighs only 2 lbs. Folds flat. Carry it like a cane.
- HANDSOMELY DESIGNED for maximum comfort!

LOCINJUL DISTRIBUTING CO.  
1398 E. 49th Street, Brooklyn 34, N. Y.

When writing advertisers, please mention Audubon Magazine

AUDUBON MAGAZINE



### Aboard the LAZY BONES

200 miles through Florida's  
Tropical Inland Waterways

Six Idyllic Days — \$95

For illustrated booklet write to  
**SHANTY BOAT CRUISES, INC.**  
P.O. Box 1628-A, Ft. Myers, Florida  
Our Tenth Year

### AUDUBON MEMBERS NATURALISTS

DON'T miss Florida's outstanding and  
most unique wildlife and wilderness tour.

TRAVEL the swamp buggy route with  
renowned Everglades guide and natural-  
ist. Experience the thrill and grandeur  
of a rare and memorable adventure.

### Everglades Guide Service

OF  
**George L. Espenlaub**  
Box 301, Clewiston, Fla.

## CARIBBEAN WILDLIFE TOURS

Endorsed by the Broward Audubon  
Society, Ft. Lauderdale, Florida

A Unique Birding Adventure — Conducted by  
former Audubon Tour Leaders. 5th Consecutive  
Season—Specializing in Natural History, Native  
Peoples, Archeology, Wildlife Photography, and  
other Natural Phenomena.

- **COSTA RICA-GUATEMALA, 8 days \$495**
- **GUATEMALA-YUCATAN, 8 days \$495**
- **COMBINATION ABOVE TWO TOURS,  
14 days \$795**

Close to timberline on the majestic volcanoes of  
Costa Rica and Guatemala, black robins, flame-  
colored tanagers, and red-faced warblers abound.  
Along the coastal rivers and plains of 2 oceans,  
sun grebes, laughing falcons, gulls, and juncos  
feed. In flat, scrubby Yucatan, parrots, toucans,  
orioles, and saltators screech and sing against a  
background of mysterious Mayan ruins and  
"cenotes."

**TOBAGO — BONAIRE — JAMAICA —  
TRINIDAD — CURACAO — 14 days — \$795**

Deep in the palm forests and mangrove swamps  
of Trinidad and Tobago, Birds-of-Paradise and  
scarlet ibis hold you spell-bound. The cactus-  
covered islands of Bonaire and Curacao boast  
flamingos, parakeets, and oystercatchers. Even  
while river-rafting in Jamaica, or skindiving in  
Tobago, you'll pick up exciting new life birds.

This is a personalized tour, 5 to 10 persons,  
conducted by two naturalists. Transportation by  
scheduled airlines, bamboo raft, station wagon,  
swamp boat, lake launch, and horse and car-  
riage. Superb opportunities for shopping.

#### WRITE:

**Wildwood Vacations Inc.**  
Box 534 • Ft. Lauderdale, Fla.

the sacred herons, 30,000 birds of  
five species—cattle egrets, little egrets,  
intermediate egrets, great egrets, and  
night herons. When our bus pulled  
into the parking place we were  
greeted by hundreds of school chil-  
dren waving small white flags em-  
blazoned with the red disc of the ris-  
ing sun. Twenty at a time we were  
allowed to climb the steel tower  
(rather like our Fish and Wildlife  
Service's observation towers) that  
commanded a tree-top view of the  
entire nesting grove. The sight that  
confronted us was like that in any  
other large rookery, except that this  
one was hemmed in by farm build-  
ings and gardens.

Those of us who wished to walk  
the paths beneath the trees were met  
by a little wrinkled old lady who  
provided each one with a bonnet, a  
sort of broad-rimmed straw som-  
brero. I recalled the times I had  
been befouled by nervous nestling  
herons that could not refrain from  
regurgitating their half-digested fish  
on my unprotected head. I resolved  
I would bring this innovation back  
to America—special hats for heron  
watchers. After inspecting the her-  
ons, many of which were at the  
height of their nuptial glory, every-  
one walked down the road to the  
schoolhouse where we sat cross-  
legged at the long low tables where  
lunch was served. On the stage at  
the end of the long room six female  
musicians and three men strummed  
great lute-like instruments while a  
boy of about 16 in white robes per-  
formed a special heron dance. The  
whole life of the village obviously  
centered about the herons. I thought  
of Stone Harbor in southern New  
Jersey with its similar heronry,  
unique in the Northeast, and I  
thought of those merchants (a mi-  
nority, I hope) who would bulldoze  
the rookery out because herons don't  
pay taxes!

### The Cranes of Hokkaido

Two weeks later we saw the Jap-  
anese crane, *Grus japonensis*, on its  
native heath in Japan's northern-  
most island. Jean Delacour, who  
was with us, said this species is the  
handsomest of all the cranes. Per-  
haps it is. Certainly it can be paral-  
leled in good looks only by our own  
whooping crane, and the recent his-  
tory of the two birds is also curiously  
parallel. Just as our bird was nur-

*Continued on page 217*

## Fantastic Binocular! ZOOM 6 in 1 7-8-9-10-11-12 Powers



Now ZOOM to the power you want. Name  
it—7-8-9-10-11-12 power. Yours as quickly  
as you can move your fingers. You can  
multiply your binocular pleasures many fold.  
One glass takes care of everything. This  
40mm coated beauty has all specifications, field, illumina-  
tion as in each separate power. Try it. You will never  
be without it. Special Offer: Complete with case and  
straps, \$47.50 plus 10% tax.

**\$47.50**

## SPOTTING SCOPE 60mm - 15 - 20 - 30 - 40 - 60x



Since we introduced this superb spotting  
scope May 1959, its popularity has grown  
by leaps and bounds. Finest construction,  
optically and mechanically. Leaves nothing  
to be desired. This 60mm objective spotter with the 5  
oculars, tripod and pan head exactly as illustrated, \$52.50.

**\$52.50**

### Extra Tripod — \$4.95

**EXTRA TRIPOD.** For those wanting an extra sturdy  
full height tripod, we offer this 30" to 60" adjustable  
one. Built of wood and brass for the U. S. Gov't at  
\$59 each. Many features. Above Spotting Scope with  
pan head and column adaptable to this tripod. Gives  
any height to 66 inches. Only \$4.95 with Spotter. Sold  
separately \$7.95.

### 7 x 50 Wide Angle 525 ft.

Here is the ultimate in a 7 x 50 mm binocular. Has the  
extreme field of 525 feet enabling you to catch moving  
objects with great ease. The usual DuMaurier top qual-  
ity. With case and straps \$52.50 plus 10% tax.

**REPAIRING.** One day delivery. One of the oldest and  
most efficient repair departments in America. 44  
years manufacturing binoculars and other optical instru-  
ments. Write.

**DuMAURIER CO., Dept. 359**

Est. 1916 — Elmira, N. Y.

Money back guarantee

Visitors to Corkscrew Swamp Sanctuary  
in Florida will recall its most impressive occupant . . .

## Mysterious *Mycteria*— Our American Stork

All photographs by Allan D. Cruickshank, unless otherwise noted.



The male makes frequent trips to gather sticks for the nest.

Usually the female remains at the nest.



By Alexander Sprunt, IV,  
and M. Philip Kahl, Jr.

FROM time immemorial the lofty tops of huge cypress trees in the Corkscrew Swamp Sanctuary have been frosted, each winter and spring, by thousands of breeding wood storks. During the spring of 1957, however, no strident voices of young storks disturbed the calm of the swamp. Not a single stork had appeared, much less built a nest or

### About the Authors

Alexander Sprunt, IV, better known as "Sandy," has been, since July 1, 1960, Research Director for the National Audubon Society. He received his B.S. degree in Biology at Davidson College, North Carolina, and his Master's degree in Wildlife Management at Virginia Polytechnic Institute. Sandy has worked for the Society since 1952, and has been, at various times, a Warden, Tour Leader, Regional Representative, and has done considerable research work.

M. Philip Kahl, Jr., is, at present, working for his Master's degree at the University of Georgia. He received his B.S. degree from Butler University in Indianapolis. Phil has worked for the Society as an Assistant Warden at Corkscrew Swamp Sanctuary and has been doing research work for us while working for his Master's degree.—THE EDITOR



laid an egg. Florida was in the grip of one of the worst droughts in history and all wildlife dependent upon water was suffering. The plight of the storks, shared by other wading birds, pointed up the serious nature of the situation and spurred the National Audubon Society to action.

This large, ungainly bird, called wood ibis by many, is the only native stork in North America. Lacking any nuptial plumes or showy feathers it had escaped the general slaughter of other wading birds for their plumage. In fact, as recently as 50 years ago there were probably as many storks around as there had ever been. The few shot for food by natives or taken by collectors would not have been sufficient to lower their numbers. Perhaps because of this, very little was known about them. Not since John James Audubon's account of the bird had an ornithologist written much about their habits or investigated them in

any detail. Before any intelligent program of conservation or protection of a species can be undertaken, much must be understood about that species and its way of life. The Society set out to investigate the stork.

Wood storks are a Florida bird.\* They occur regularly in other states and are found throughout Mexico, Central America, and far into South America, but as far as the United States is concerned they belong to Florida. Here they formerly bred in tens of thousands, literally covering the trees with a blanket of nests. A few pairs have nested in Louisiana and South Carolina but never in any numbers and not in recent years.

\* "Breeds and winters on Pacific coast of North America from Sonora . . . south to western Costa Rica . . . on the Gulf and Atlantic coasts from Texas, Louisiana (at least, formerly), South Carolina (probably breeds), eastern Georgia (formerly), and central and southern Florida south through eastern Mexico and Central America to Panama, Cuba, and the Dominican Republic." — "A.O.U. Check-list of North American Birds," Fifth Edition (1957).

In the mid 1930's there were lots of storks. According to Robert P. Allen, some 30,000 nested in the Corkscrew Swamp alone and another 50,000 at the heads of Shark and Lane Rivers in what is now the Everglades National Park. Other smaller colonies probably swelled the total to 100,000 or more birds. Since that time, there has been a steady, and until recently almost unnoticed, decline. The causes of this decline are not difficult to determine.

Two areas in Florida are of paramount importance to storks. These are the so-called "Big Cypress" in the southwestern part of the peninsula, and the mangrove swamps of the southern tip of Florida, together with their adjacent fresh-water marshes. Here were the huge rookeries of the past and here are the largest colonies today. Here too there have been drastic changes during the past 25 years. Let's consider some of them.

From time immemorial, Corkscrew Swamp had thousands of breeding storks. Photograph by Max Hunn.



Cypress trees make wonderful timber as well as stork nesting sites. By the early 30's, eight saw mills were operating at Immokalee, near Corkscrew Swamp, in the heart of the Big Cypress. The lumbering operations continued at an increasing rate and by 1956 almost all of the large trees had been removed. Some were actually felled while storks were nesting in their tops. Except for Corkscrew Swamp and a few minor spots the storks were homeless.

Farther south a different and more complex change was taking place. Beginning with construction around Lake Okeechobee, far north of the Everglades, drainage began to be effective in the Everglades and the water table was steadily lowered. The effect of this was heightened by fires which destroyed the organic soil and still further reduced the water-holding capacity of the glades. All this did not directly affect the mangrove swamps where the storks breed but now in drought periods the teeming fresh water

marshes lie baked and dead in the sun. During such times, the storks are virtually foodless.

These same three factors—lumbering, drainage, and drought—made themselves felt all over the state, reducing stork populations everywhere. By 1957 the stork population had reached a new low. Probably not more than 8,000 storks were left. Since that time a series of wet years has allowed a good recovery and this year some 8,760 pairs of storks are again nesting in 14 Florida nesting colonies. About 4,700 pairs nested in Corkscrew Swamp Sanctuary.

We are beginning to learn a little about wood storks. We suspect that there may be two breeding populations of storks in Florida. The first of these, by far the largest, nests in the southern part of the state in winter and early spring. Its habitat consists of large cypress or mangrove swamps with fresh-water feeding grounds nearby. The second, smaller group nests in smaller cypress swamps in central Florida

in spring and early summer. Both groups need large trees for nest sites and adequate marshes to provide a plentiful supply of food.

The food of the wood storks is predominantly fishes. Their long, slightly decurved bills are adapted for groping in shallow water, feeling for fishes rather than spearing their prey as do the herons. They especially prefer periods of falling water levels which concentrate their food and make it more available. This may be the factor which determines the time of the breeding season.

One of the most interesting periods in a bird's biology is its breeding cycle, and none is more vital, for no species can increase or maintain itself without successful reproduction. The wood stork spends from one-fourth to one-third of its year in activities directly concerned with raising and caring for its young. As the beginning of the breeding season draws near, the potential parents form large flocks in the vicinity of the nesting colonies. These flocks

Unless they are disturbed, the young storks remain in the nest until about 50 to 55 days old.





Within ten days or two weeks after hatching, the young storks are covered with woolly white down and take more of an interest in their surroundings.

are the scene of much stormy courtship in the days to follow. At first, as with some other species, the storks are apparently unable to distinguish the sex of other storks. Only through a series of behavior patterns, mostly of attack and retreat, can they sort themselves out. Certain individuals keep returning to other individuals after being driven off. One bird approaches with head hanging low and when within reach of another, grapples with it, and nibbles at the bill of the other bird. It is apparently the female which thus takes the initiative and actively woos the more reluctant male.

After the pair bond is formed, nest-building begins. Usually the

female remains at the nest site while the male makes frequent trips to nearby trees or bushes gathering sticks for the construction. They both work material into the nest and complete it in about three days. By the fourth or fifth day after the two storks are paired, the first egg is laid and the storks begin to incubate. The female lays her eggs at intervals of one or two days until the clutch of three or four is completed. Both sexes take turns sitting on the eggs which are never left untended during the 28-32 day incubation period. Incubating birds sometimes sit quietly for hours. At intervals they may get up, flap their wings, preen, and work with sticks in the nest. After standing

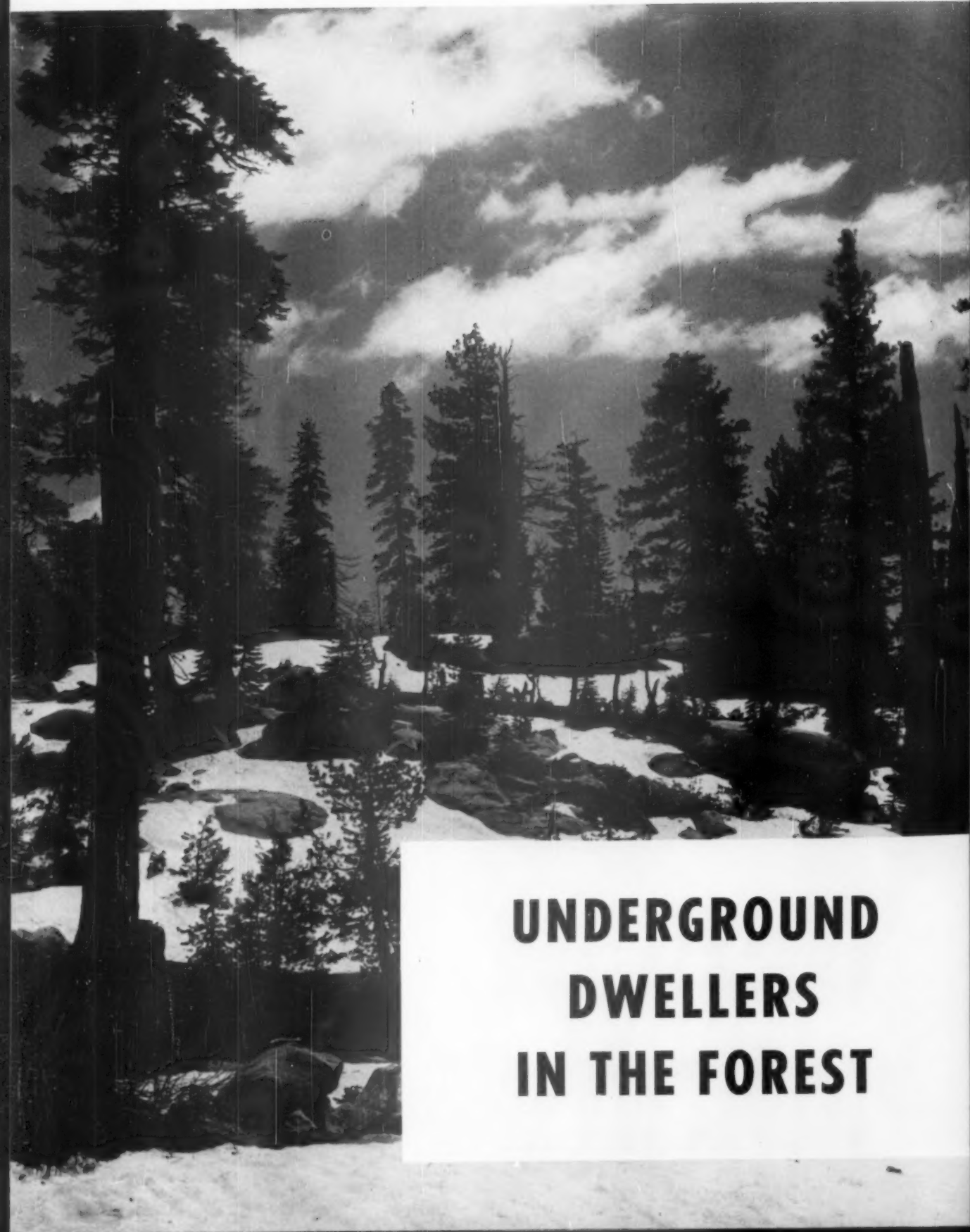
for several minutes, moving their legs to restore circulation, they turn the eggs with their bills and settle again, snuggling a little to make good contact with the eggs.

When a bird comes in to take over the duties at the nest, the incubating bird rises part way, cocks its tail over its back, and gapes\* at the incoming bird. During the gaping, a hollow hissing or fizzing sound is uttered by the bird on the nest. This is the only vocal sound that we have heard given by an adult wood stork. Often the incoming bird brings a stick which is worked into the nest, enlarging and

\*Opening the mouth, which is probably part of the adult "greeting" ritual. Young birds usually gape when a parent bird alights on the nest, which brings about the feeding response from the parent.  
—The Editor

Continued on page 234





**UNDERGROUND  
DWELLERS  
IN THE FOREST**



# Even the small mountain beaver, tiny moles and pocket gophers, have an important effect on the Sierran Forest.

All photographs by Lloyd Ingles, unless otherwise noted.

By Elizabeth Ingles

THE soil on the floor of a Sierra forest is dry and powdery. Except at high elevations rain seldom falls in the summer. Moisture-loving plants grow only in subirrigated meadows or along the streams. At 7,000 feet the forest community is made up chiefly of red fir and lodgepole pine with a few invaders from lower altitudes as the white fir and Jeffrey pine. There are clumps of perfectly shaped young red firs, the tips of their branches decorated with new growth shining silvery in the sun, scatterings of low-growing manzanita and deer brush, and early in the summer, scarlet snow plants growing on the dead and decaying bodies of other plant life. Tall pink borage and tiny yellow or pink monkey flowers less than three inches tall bloom in drifts in the clearings. Many birds, mammals, insects, and other animals find suitable niches to make their homes here. There is much competition between species and individuals above the ground, and even below the surface of the earth the struggle for survival is keen. Yet the species that live in the dark subterranean passages beneath

the floor of the forest appear compatible, or at least indifferent to each other. Two are rodents—one the montane pocket gopher, a mountain representative of a large family of digging mammals, another, the mountain beaver, the single remaining member of an archaic family found only on the Pacific coast. A third species of this fossorial group is the soft-furred, broad-handed mole which frequently is mistaken for a rodent but is actually an insectivore.

A willow thicket on a seepy hillside or at the edge of a meadow irrigated by a tiny brook is a favorite habitat for *Aplodontia rufa*, the mountain beaver. Although related to the squirrels this animal neither looks like a squirrel nor a beaver. Its habits are somewhat like the beaver which probably accounts for its common name. Resembling an enormous meadow mouse in appearance, the mountain beaver is a chubby animal about a foot long and has a thick undercoat of soft dark gray fur from which grow long shiny black guard hairs that become pale gray on the sides and abdomen. The rather large ears are set close to the head and have a conspicuous white spot at their base. The tiny

eyes and long whiskers give the animal a rather comical appearance. Unlike the true beaver, our animal has a very insignificant tail which appears lacking to the casual observer, since the animal spends a great deal of time sitting on it as it munches its dinner.

The mountain beaver digs its burrows beneath the roots of the willows, mosses, sedges, and grasses. These many-branching subways often open suddenly in a large hole usually hidden beneath a willow clump or under a bunch of meadow grasses or ferns. From this opening the rodent makes food-gathering forays overland into the adjoining meadow. Here it gathers the broad leaves of the shooting stars; flowers, seeds, and foliage of common yellow monkey flowers; and a golden sunflower-like plant, the tender shoots of grasses, snips off occasionally the fresh new growth of a young fir and carries the food to its burrow. The mountain beaver makes hay rather haphazardly, dropping little piles of herbage here and there in the burrow to be used during periods of inclement weather. If it feels really hungry it settles down on its haunches, pulls the plants toward it with the long toe-nails on its front feet, cuts off a bit of herbage with its sharp incisors. Using its hands to guide the food, it chews busily away until the grass blade or plant foliage is consumed. When the bright yellow monkey flowers, blue gentians, magenta shooting stars, and golden sunflowers are in blossom, it gathers the entire plant and eats flower as well as stem and leaves. If the flowers have gone by and only seed-filled fruits remain, it eats these.

The mountain beaver is a voracious feeder. It seems to have a one-track mind when hungry. Then it sits on its insignificant tail, and stuffs food busily into its mouth until its hunger is satisfied. Suddenly it is full, and may drop off to sleep right in the midst of dinner if the spot is sufficiently protected. Otherwise it drowsily drags itself to a burrow and "sleeps it off" for four to five hours before getting busy again on its hay-making, enlarging the burrow, or eating again.

In an active mountain beaver colony, the underground runways, opening through elliptical holes to the outside; well-beaten paths overland

←At 7,000 feet, the forest is largely red fir and lodgepole pine. . . . Photograph by Verna R. Johnston.

Moles are rarely seen above ground. In the forest they eat insects . . . and their burrows help to prevent the runoff of water.



to favorite eating spots; and bits of cut herbage are about all an observer might see of the animals. Although this rodent is not strictly active at night, as was formerly thought, it is rather shy and spends much of its time in the safety of its burrow or hidden beneath the ferns and willow clumps. In fact, the animals may be numerous, but they are very local in their distribution and rarely venture out where they can be seen. Often a meandering mountain brook follows the burrow. This does not seem to disturb the animal for it is a good swimmer and seems quite at home in the water. In fact if water is available it will sit in it to eat or gather food, bringing it back to the water

to wash before stuffing it into its mouth.

The mountain beaver enjoys the water. Colonies of these animals, the same species as found in the Sierra, live below ground in the fog-drenched redwood belt along the Pacific coast north of San Francisco. There they naturally eat a different diet than their Sierran relatives living on what this kind of forest provides—thimbleberries, salmon berries, salal, nettle, and lupine. In the coastal habitat they are sometimes called locally by the name “boomer,” because of a hollow, booming-like call attributed to them. The *Aplodontia* of the Sierra apparently is almost mute, for no such booming



Until recently, naturalists maintained that mountain beavers could not climb trees. This mountain beaver is in a lodgepole pine.

voice or any other sound has ever yet been noted by observers.

Mountain beavers do not hibernate even when winter snows pile a six to twelve foot blanket over their underground homes. They simply burrow through the snow as much as 50 yards from the den. After reaching the surface, they shake to rid themselves of the white crystals that adhere to their long guard hairs, and sit down on the snow to eat the bark of young firs or willows. Occasionally they climb 12 to 15 feet up in young firs to cut and eat the tender needles and twigs. Probably they sleep on the hay stored during more equitable months and eat it only when heavy snows keep them from foraging. They do not cut trees, build dams, or make stick and mud lodges like the true American beaver, and appear to eat bark only when they can get nothing else.

Scattered colonies of these little-known mammals live underground in red fir-lodgepole pine forest communities where they probably have few enemies or competitors. The montane pocket gopher may live near by, but it prefers a dry slope



A willow thicket in a meadow is a favorite habitat of the mountain beaver.

The mountain beaver is the lone remaining member of an archaic family.



beneath the trees or a high well-drained home in the meadow. The gopher likes to eat roots as well as the foliage of plants, and if its home becomes too damp will move rather than get its feet wet.

In the duff, beneath the red firs and lodgepole pines growing at the edge of a meadow, circular mounds of soft earth often reveal the homes of the montane pocket gopher. Like its valley cousin, the montane pocket gopher resembles a small meadow mouse, but has a very short tail, dark brownish-black coat, and deep fur-lined cheek pockets which it uses for carrying food and nesting materials. Its long, strong incisors are extremely important to the animal for digging its burrow, cutting food and nesting material, defending itself from predators, and fighting off other individuals of its species. From the shadow of the trees its mounds may continue out into the higher, well-drained portions of the meadow. Although very little activity appears to be going on judging from evidence above the ground, the subterranean passages below the mounds of the gopher are centers of great industry. Here, except briefly during the mating season, a solitary householder digs its way through the soil, enlarging its burrow, storing food, preparing a nest cavity, and shoveling out excess soil from its newly-dug home to make the piles of soft earth that are so evident in the midst of the green grasses and other herbage of the meadow.

The removal of earth from the clogged passages is a tedious as well as dangerous chore for the montane pocket gopher. After digging its tunnel to the surface of the ground, the gopher returns, scoops up the soft earth in its forearms, rushes up the tunnel, and throws the load forcibly as far as it can beyond the opening. Before the cleaning job is finished, the little rodent may grow hungry. At such times it may venture out from the safety of its hole, pull up a plant, drag it back into the burrow, and eat it. Such activity may attract the attention of a prowling coyote which may charge at the curious whiskered face of the gopher. If the near-sighted eyes of this little rodent are successful in sighting the predator quickly enough, it may escape into the safety of its dark tunnel and outwit the sly coyote. Sometimes too,

as it comes to the surface with its arms full of earth, gray foxes, hawks, owls, and even a black bear may notice the movement and catch the little earth-mover before it can withdraw into its burrow.

Fortunately for the gopher much of its work is done below the ground. Here it gathers tubers, bulbs, and the roots that grow down into its burrow; sometimes pulling the entire plant into its sanctuary without showing even as much as a whisker above the surface. If the animal's hunger is satisfied, it cuts the plants into short pieces which it stuffs into its fur-lined cheek pockets and carries to its pantry for storage. These pantries are dug by the gopher as

offshoots from the main tunnel of its burrow. Here it stores large quantities of food for use during the winter. Gophers do not hibernate even at high altitudes when snow reaches a depth of 15 feet on the level. Winter for them is a period of less activity probably when they spend considerable time at home, resting in their warm nests or running along their subterranean tunnels from one storeroom to the next, feeding on the "groceries" they put away for just such an emergency.

But as the heavy snows thin, the busy gopher may leave its stores to dig for fresh roots under the snow blanket. Just as in summer, the burrower must get rid of excess soil by

*Continued on page 216*



As snows melt, the winter diggings of the mountain pocket gopher are exposed.

A mountain pocket gopher in its burrow after pushing a load of soil outside.







Young oystercatcher photographed by Roger T. Peterson.

swiftly vibrating pinions. That is a style of flight rather unlike that of other large shorebirds. Curlews, for example, occasionally lurch as if trying to shrug their sandy-colored shoulders in mid-air, and then glide. These oystercatchers flew more like ducks, the white of their underparts, lower backs, and primaries flashing in the sun.

When they settled on the beach a few rods west, I crept up behind a hillock to watch them. They stood in the open, their color patterns showing strongly against the glittering background of sand and sea. Their heads, necks, and upper breasts were black, with a faint, bluish-green lustre. Using my binoculars to bring them closer, I noted that their eyes were orange-yellow, circled with red lids, and that their short legs were between lead and flesh color.

Their beaks were very striking, about four inches long, broad, flattened laterally like knives, and bright red. Oystercatchers, particularly the big females, measure 21 inches long, with a wingspread of

# THE OYSTERCATCHER

By Henry Marion Hall

**L**ANDING on the northern tip of Wreck Island, Virginia, early one May, I found a large colony of black skimmers nesting on the sand within a rod of high water mark. Their white eggs, marbled with lilac and brown, lay everywhere, so close together that it was necessary to move with care for fear of stepping on them. The long-winged skimmers circled around, screaming and scolding.

As I watched their aerial gymnastics, a shrill "Weep! Weep! Weep!" sounded overhead, and a pair of oystercatchers\* spun by on

Young oystercatcher "hiding" alongside a seashell. Photograph by Allan D. Cruickshank.



\* The American oystercatcher, *Haematopus palliatus*, also called the brown-backed oystercatcher, sea crow, and mantled oystercatcher, nests "locally on the coasts of Aransas and San Antonio Bays, Texas, Louisiana (east of the Mississippi Delta), Alabama (formerly), and western Florida (formerly common, now rare), and from New Jersey south to Georgia, formerly to eastern Florida . . ." according to the "A.O.U. Check-list of North American Birds," Fifth Edition, 1957. The black oystercatcher nests from Kiska Island in the Aleutians south along the Pacific coast to Baja California.—The Editor



three feet. Of all American shorebirds, only the sicklebill curlew is larger and has longer wings.

After preening a moment they ran a few steps, rather more nimbly than one would expect from such bulky birds. Presently, one plunged its bill into the wet sand as if groping for something, and twitched out a small clam. In similar fashion, they seize bloodworms, shrimps, crayfish, and juicy sand-fleas, the big, translucent kind.

Mollusks are their favorite food, although they also like sea-urchins, crabs, and small starfish. Their stout beaks make mincemeat of all such creatures, but are equal to much harder work. They hammer barnacles and mussels off shoreside rocks, and readily smash open razor clams and other shellfish.

Raccoon-oysters are their standby. These grow together in sharp-edged clusters extremely hard to tear apart, and abound in southern creeks, in-

lets, and lagoons. Oystercatchers deftly thrust their bills between the edges of the valves, cut the adductor muscles, and devour these mollusks by the dozen—so many, it is said, that their flesh tastes somewhat like them.

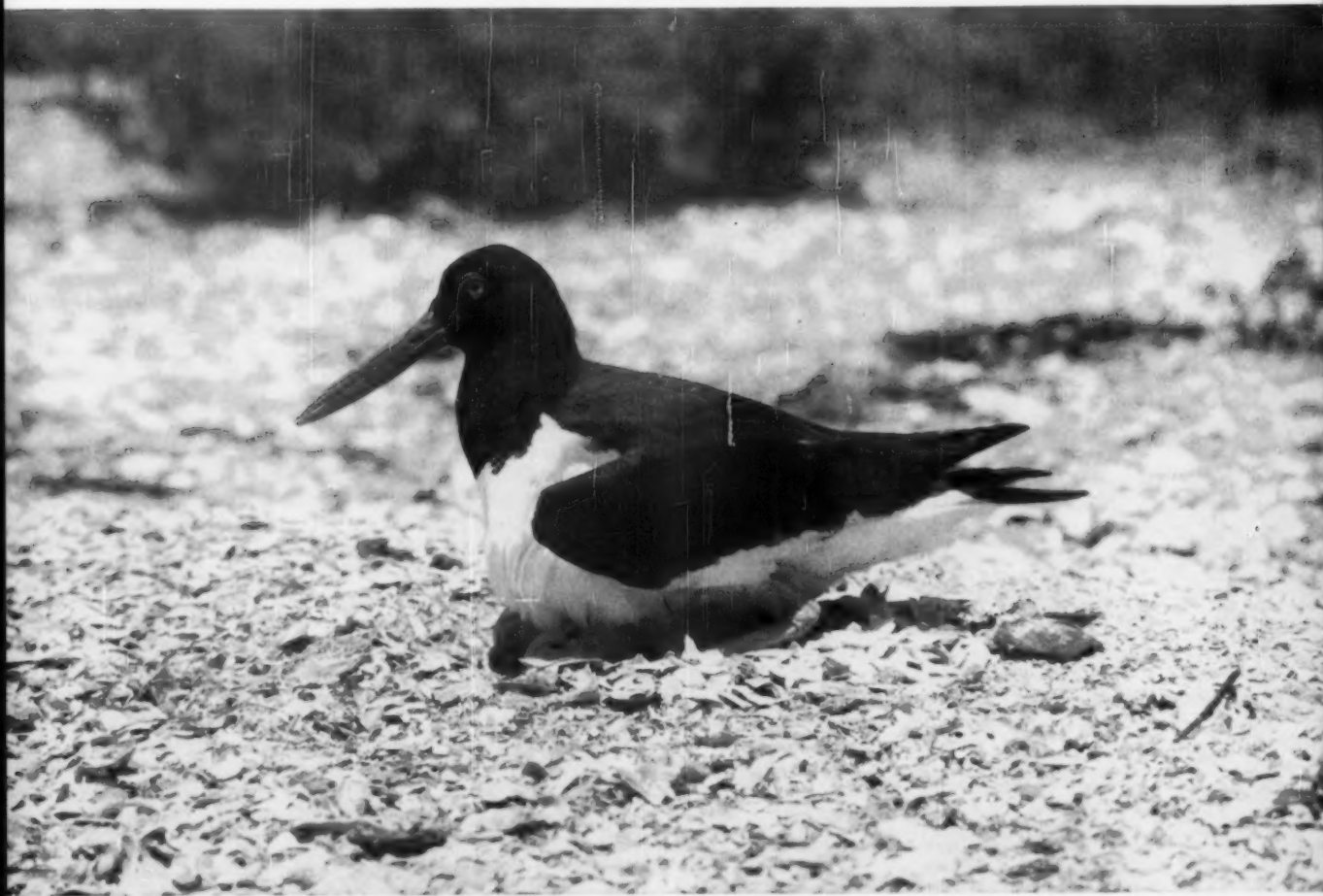
#### About the Author

Many of our readers will remember the series of shorebird articles by Dr. Hall that we published in past issues of *Audubon Magazine*. Some of these were, "The Sanderling," November-December 1956 issue; "The Red Phalarope," May-June 1957; "The Least Sandpiper," September-October 1957; and "The Wilson's Snipe," September-October 1958 issue. Dr. Hall has included many of these in his new book, "A Gathering of Shorebirds," illustrated by John Henry Dick, to be published by The Devin-Adair Company, New York City, in the fall of 1960.—THE EDITOR

It is difficult to open an oyster, a quahog, or even a sizeable mussel without the proper implement. You must learn to locate the precise spot near the hinge before you can force the bivalve asunder even with a regular oyster-knife. An oystercatcher has a better natural tool in its tough vermilion mandibles. Oysters of every kind are stubborn, close-lipped mollusks but they are helpless before an oystercatcher.

Nevertheless, one must avoid exaggeration. Mr. S. Bayliss S. Smith, a British ornithologist who has studied European oystercatchers and photographed them for years, declares that these birds greatly prefer mussels because they are easier to split open. Maynard, quoted by Howell in his "Florida Bird Life," page 215, long since reported watching flocks "alight among the oysters and when the bivalves gaped open, as is their habit when the water first leaves them, the birds would thrust

Adult oystercatcher settling on its eggs, photographed by Allan D. Cruickshank.



in the point of their hard, flat bills, divide the ligament with which the shells are fastened together, then, having the helpless inhabitant at their mercy, would at once devour it," concluding: "They were not long in making a meal, for specimens which I shot after they had been feeding a short time were so crammed that by simply holding a bird by the legs and shaking it gently the oysters would fall from its mouth."

Audubon also reported watching birds of this species "seize the bodies of gaping oysters on, what are called in the southern states and Florida, 'raccoon oyster beds,' smash a 'razor-handle' against the sand, and suck sea-urchins." He likewise writes of seeing an oystercatcher "knock off limpets on the coast of Labrador, using its weapon sideways and insinuating it between the rock and the shell like a chisel." (Howell, p. 215).

In the days of Audubon and Wilson these birds were conspicuous as far north as Labrador and Nova Scotia. Their range includes both coasts of North America, Mexico, Central America, the West Indies, and the shores of South America to southern Chile and Argentina.

On our Atlantic coast they are now rare north of the Virginia capes, although they are occasionally reported from Long Island\* and various points in New England. One flew past my hide-out at Peaked Hill Bars on Cape Cod not long ago. A wanderer, of course, as it is a far cry from Virginia to Cape Cod. But the long-winged black skimmer has recently been found nesting within ten miles of Jones Beach, Long Island, New York. It would not be surprising if the oystercatcher also might return to some of its ancient haunts.

Oystercatchers were never gunned to any extent. Wild and wary, they seldom assemble in flocks, and they shun decoys. It is almost impossible to stalk one on the open shores of the small islets which it frequents, and who would ever take the trouble, even if it were still considered a gamebird?

Oystercatchers breed locally throughout their range, and Wreck

Island is about the northern limit of that range. They lay their eggs, two or three in a set, on mounds between the ocean shore and the first low dune inland. Sometimes they decorate their roomy, bowl-shaped nests with bits of clam shells or scallops. In England and the Hebrides I have seen sets of the European bird's eggs deposited in depressions prettily lined with grasses whirled into a circle.

The eggs are large, heavily spotted, ovate in contour, and are very handsome. The base color varies from drab to white, but their protective pattern makes it a bit difficult to spot them on the pebbly shore.

The front toes of these birds are basally webbed and they swim and dive well. When they want a bath

or a drink they generally fly inland to the nearest fresh water, where they paddle and splash themselves vigorously. Unlike willets, oystercatchers do not betray the whereabouts of their nests by their cries or their actions. They flush and fly far away from any intruder and do not circle back as do so many plovers.

I usually find only a pair or so on any one island, and these are widely distributed and rather solitary. They are birds of the seacoast, and almost never stray from the coastal islands, lagoons, and inlets. They are always a delight to the eye. Fast on the wing and fast on their feet, and wearing striking and picturesque color patterns, they add immensely to the attractiveness of our barrier islands and lagoons. —THE END

#### UNDERGROUND DWELLERS IN THE FOREST—Continued from page 213

piling it on top of the ground, so in the winter the rodent pushes the remains of its digging out of the hole under the surface of the snow forming hard earth cores which sometimes reach a length or more than 35 feet. By this method the gopher extends its subways and is able to meet the needs of its compact little body. When spring comes the snow melts and the long black ridges of earth are uncovered, evidence of a busy winter spent below the ground by this industrious little worker.

In addition to the "subways," pantries, and nest chambers, the gopher equips its home with a "bathroom" which it uses exclusively. Thus the subways are always clean and fresh. Many other animals provide such sanitary facilities when possible. The mountain beaver has a similar disposal chamber for maintaining sanitation in its underground tunnels. If the burrow accidentally becomes soiled with excrement the mountain beaver picks up the round pellets with its paws, places them in its mouth, and carries them to the disposal chamber. Both rodents, the mountain beaver and mountain pocket gopher, are prodigious eaters and strict vegetarians. Consequently, they pass a great deal of undigested roughage so that special rooms set aside to take care of these wastes are essential in order to prevent clogging of the burrow system.

Gophers are hermits. They live alone except during the mating sea-

son when the male invades the female's burrow, is accepted, and without any further "love-making" is driven away. When the young are weaned, they too are expelled from their mother's burrow to make their own way in the world beneath the earth. The females apparently don't go out of their way to look for trouble with others of their species, but the males have short tempers and are great fighters, often battling until death eliminates the opponent. This results in a population in which females often outnumber males ten to one. The male may show an intruding female the sharp side of his incisors, but he will not fight her. Usually she is timid, sees the error of her ways, and withdraws gracefully.

Perhaps the most fossorial of all digging mammals are the moles. Very rarely are they seen above the ground, but spend their lives in subterranean burrows where they "swim" through the soil only a few inches below the surface leaving a continuous ridge of earth above the tunnel. Or sometimes they dig deeper into the ground making a "mole hill" or soft pile of broken soil something like that left by a gopher.

Moles are small, soft-furred mammals with sharp, needle-like teeth and are closely related to shrews. Like the shrews, the moles prefer insects but will eat in addition roots, bulbs, earthworms, sowbugs, and

\* Mrs. C. M. Porter of Center Moriches, Long Island, reported to us a nesting record in the summer of 1960 (see "Letters," p. 202 of this issue), the first for New York State in 100 years.—The Editor

seeds. In the forests their burrows help to sink the water into the earth and prevent too rapid runoff. Eyes are not of too much importance to an animal that spends its life below ground. The mole's eyes are tiny and buried deep in the thick velvety fur that covers its head and body.

In the powdery soil beneath Jeffrey and lodgepole pines and in mountain meadows adjacent to the woods, the broad-handed mole probably lives a quiet life, with little if any competition with other fossorial dwellers like the montane pocket gopher and the mountain beaver. Moles of this environment seem not to be highly competitive with their own kind, for the mole population in a forest is usually small. Predators may cause the broad-handed mole little trouble, since an unpleasant body odor seems to make its flesh unpalatable even to such strong-stomached birds as horned owls.

Relatively free from predation, without competition within the species or with other animals, the broad-handed mole should prosper and become common in its habitat. This is not so. Undoubtedly there are limiting factors such as too little or too much moisture, unsuitable soil conditions, insufficient or variable food supply at crucial times of the year, a rigorous climate in which the soil is frozen at least part of the time, or a combination of these. Whatever the cause, this silvery-brown, soft-coated mammal with the tiny eyes, big hands, and pointed snout is not common in the forest and probably affects its environment far less than do the gophers and the mountain beavers.

The mountain beaver, broad-handed mole, and pocket gopher are the tillers of the soil, turning it over, mixing it with plant materials, and opening it up so that air and moisture can enter. Their burrows deep beneath the surface of the ground also help in preventing too rapid runoff, since the rains and melting snows follow the runways deep into the earth. Thus the little burrowers are water conservationists at a depth where the roots of the firs, lodgepoles, and other plants may draw up water into their leaves in the manufacture of food for their own use and that of other living things or the water is given off in the air to rise into the atmosphere where

later it is returned to the earth as rain or snow. In this way these mammals play an important part in their community, a role in which they have little personal interest, but which none-the-less entwines their lives with the great firs and pines,

#### BIRD'S-EYE VIEW—Continued from page 205

tured from a low of 20 to a meager 30 during a period of 25 years, the Japanese crane also increased from 20 to 30 during a period of 25 years. But during the last decade there has been a boom and the population of Japanese cranes now stands at 130.

The Japanese crane, a white-bodied bird with a black neck, has two advantages over the whooper, two things that favor its survival. It is sedentary; it does not make the long hazardous migration that puts the flock of whooping cranes in jeopardy twice a year. Furthermore, it is not territorial in winter as is the whooper. Therefore the winter flocks can survive in a relatively small area where they can be fed artificially. In the country village where the main flock makes its winter headquarters the school children have taken it upon themselves to furnish the stately birds with corn. It is this supplementary feeding, in winter fields as frozen as those of Maine, that has raised the threshold of survival.

We saw several pairs of birds out on the vast marshes near Kushiro where they nest, but we were told that drainage schemes threaten portions of these watery fastnesses. Once, as we watched the six captive birds in the crane park, two wild birds flew in and to everyone's horror, one of the big birds struck one of the high tension wires that spanned the marsh. For a moment it faltered, but recovering quickly, it flew on. Fortunately, its wing was not damaged.

#### At the Edge of Extinction

The Japanese storks, like the famed white storks of the Rhine Valley, are doing very badly. In fact, only 21 individuals are now known to exist in all Japan. Sixteen of these

live in a valley near the town of Toyooka where a citizen's stork protection committee has been formed to try to save the tragic survivors. This year has been a particularly black year. In the two nests known to have had eggs, not one young stork has seen the light of day. My four days in the rice paddies of this misty valley will be reported in full in a later column.

—THE END

Rare as is the Japanese stork, there is one long-legged marsh bird still rarer. The crested ibis, *Nipponia nippon*, numbering perhaps 16, is on the very edge of extinction. A white bird with a delicate tinge of pink, it combines a long head crest with the typical decurved ibis bill. Confined to Sado Island and Ishikawa prefecture, it is extremely shy. A nest was located this year, but I did not learn whether it was successful. It is unlikely that persecution brought the ibis and the stork to their present dead-end. Habitat changes seem to have worked against them. But what can be done in a country like Japan? The population, half that of the United States, is crowded into a land area only one twenty-sixth as large. Even this does not give a true picture, for most of Japan is too mountainous for habitation and the swarming millions are concentrated on the river plains.

The crane, the stork, and the ibis are designated as National Treasures. The Japanese recognize that these birds, inspiration of thousands of fine prints and carvings, are far more valuable than even the greatest works of art for they are the end-product of millions of years of evolution. Once they enter the black void of extinction, no power on earth can bring them back.

—THE END

NEW YORK CITY — Nearly 20,000 boys and girls studied nature and introductory lessons in conservation at summer camps in forty states and Canada this year, according to records of the National Audubon Society. These youngsters were members of Audubon Junior Clubs, a program that is used in many schools during the school term.



# Brush Rabbits

Photographs by the author

By Frank F. Gander\*

AS the first light of dawn spread slowly over my garden, a female brush rabbit, *Sylvilagus bachmani*, came into my view. Cautiously she made her way to a box-like frame I had placed around the base of a young magnolia tree, and hopped inside of this. She smelled all around, apparently checking to see if anything had disturbed the nest which she had built there and which she had first been working on a week

earlier. After about five minutes, a cottontail rabbit came hopping past, and the brush rabbit left without uncovering the nest. She came back again at sunrise, hopped in and out again twice, then went away out of my sight.

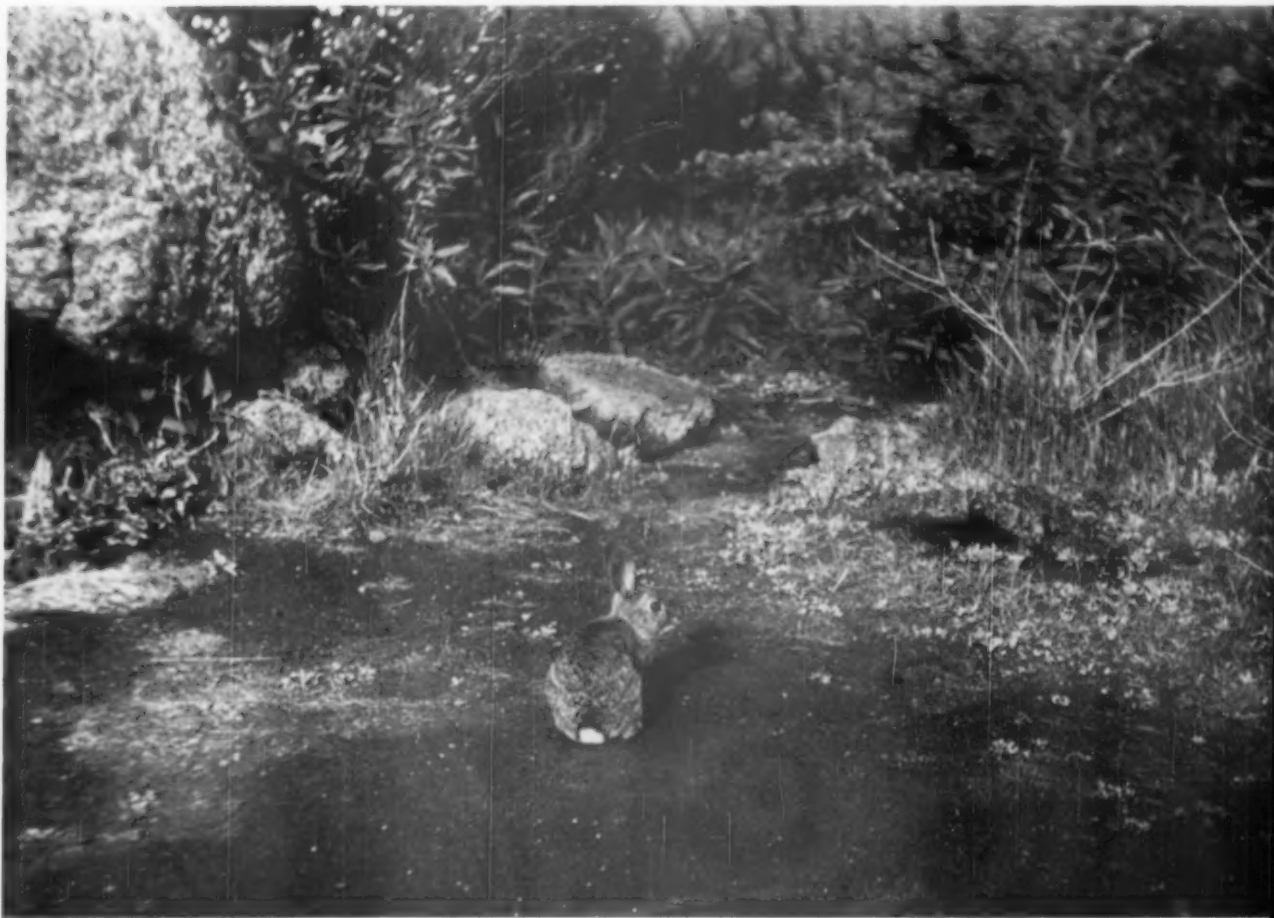
This little expectant mother returned in about 20 minutes and fussed about, moving leaves over the nest site. After she left, a cottontail came along and hopped in and smelled about over the nest area. I could see this nest easily from within the house, and I was hoping to watch the mother with her litter, however, this nest was not used to cradle the young. She built an-

other nest under a camellia in a planter box beside my house, but this, too, she deserted. The nest which did cradle the young, I did not find until after it had been discovered and raided by a little spotted skunk, or *spilogale*. It was under an open frame platform which held a tank for catching rain-water.

One year, as early as January 12, I saw a female brush rabbit building a nest. She was carrying mouthfuls of dry grass into a large clump of blue rye grass, *Elymus glaucus*, which grows in my garden. Some nests I have seen were in dense brushy growth behind a rock where the doe would need to climb over the rock to

\*Mr. Gander, a naturalist of southern California, is a regular contributor to *Audubon Magazine*. Readers will remember his recent article, "Western Bluebirds in My Garden," published in our March-April 1960 issue.—The Editor

The female brush rabbit in this photograph was the tamest one that came to the author's garden.



get to the nest. The nest is usually a shallow basin scooped in the earth, then lined with dry grasses and with rabbit fur. A blanket of dry grasses and fur is used by the mother to cover the babies to conceal them and keep them warm while she is away. Brush rabbit nests that I have seen have had much less hair in them than is usual with cottontail nests. When the mother returns to the nest, she pulls away the covering and sits over the babies to let them nurse. Such nests of young rabbits are sought by most predators, and many are raided by foxes, skunks, cats, and snakes. Each litter is small, usually just three or four young, and when one brood is taken by predatory animals, another is soon produced. By trying repeatedly from January to June, each doe may succeed in raising a few young.

Brush rabbits are very common in my garden, which is a one-acre naturalistic planting of trees and shrubs

on a rocky slope. Usually there are from five to seven females (or does), living in the area and two bucks. The bucks may be recognized by

#### THE BRUSH RABBIT

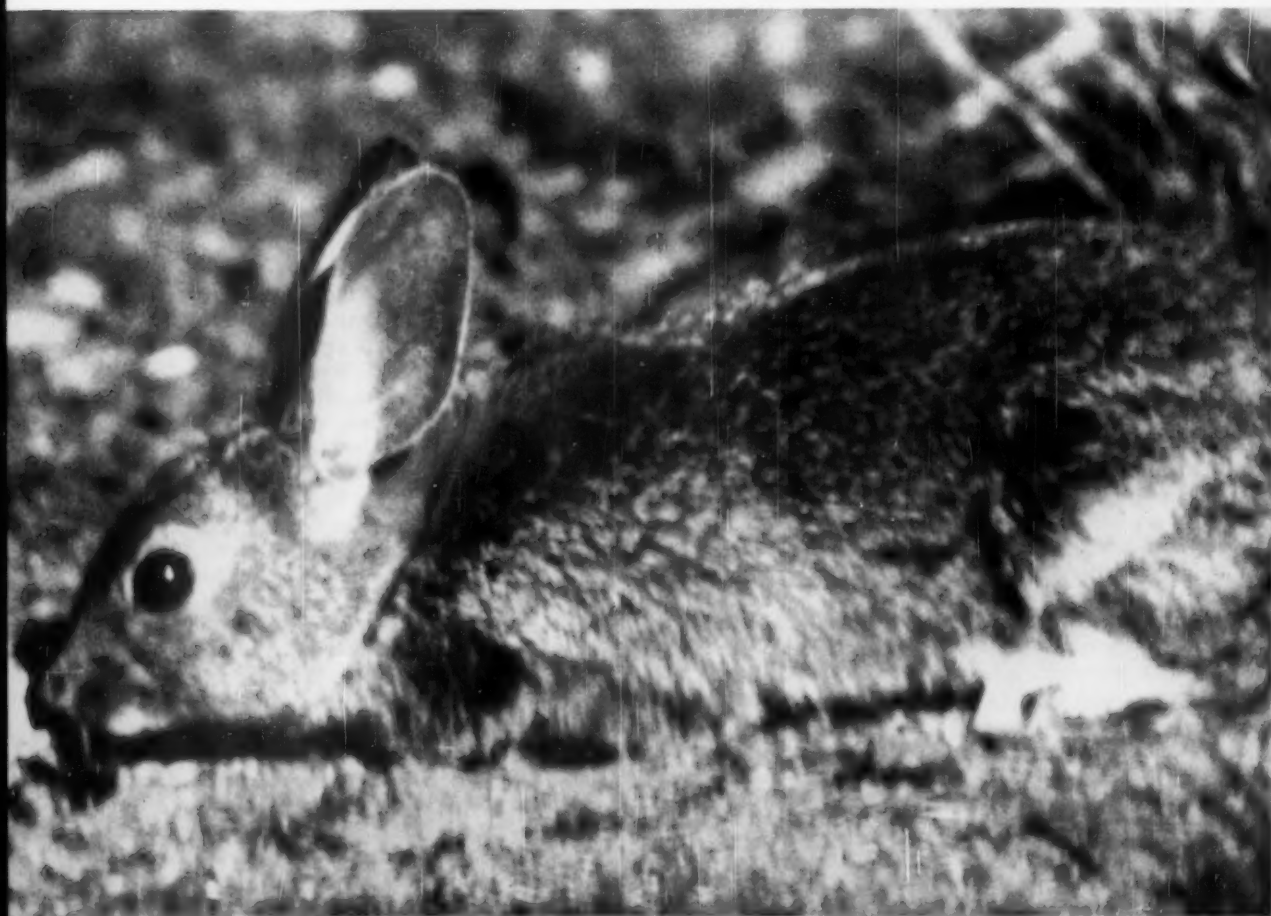
The brush rabbits, *Sylvilagus bachmani*, are small and dark. They have short legs and short tails, are 12 to 14 inches long, and weigh from  $1\frac{1}{4}$  to  $1\frac{3}{4}$  pounds. Brush rabbits, as their name suggests, prefer to live in dense shrubbery and seldom venture far away from its protective shelter, wherein they make well-defined runways. They live on the Pacific Slope from the western foothills of the Sierra Nevada to the Pacific coast and from Oregon southward into southern California. Their breeding season is generally from January to June, and two to five young may be born in a litter.—THE EDITOR

their shorter, broader muzzles, and by a conspicuous but broken white ring around the eye. They appear to have slightly broader ears than the females, but I have made no measurements to verify this. Both does and bucks have ears that are much shorter and somewhat broader than those of the cottontails of this region, and somewhat shorter and much broader than the ears of eastern cottontails.

Brush rabbits are short and compactly built, and when fully mature are a rather evenly-colored dark sepia brown, quite different from the varying shades of yellowish-gray and rufous of cottontails. The rufous patch back of the ears is brightly colored but small and not so conspicuous as in the cottontails. Young brush rabbits are dark, steel-gray in color, and in their first winter pelage retain some of this gray along the lower part of the face and across the legs and lower part of the body. Each

*Continued on page 242*

The male brush rabbit has a white area around its eyes that is slightly more pronounced than in the female.





# THE PRESIDENT REPORTS TO YOU

By Carl W. Buchheister, *President of the National Audubon Society*

## Conservation Around the World

The National Audubon Society historically has played an important part in international cooperative efforts to promote conservation in all parts of the world. No doubt these efforts seemed far away and even far-fetched to many Americans four decades ago when the International Council for Bird Preservation was first organized. In today's jet age, however, the critical wildlife problems in Africa and Asia are close at hand and very real to all of us.

I deemed it a great privilege and honor, therefore, to represent the Society at meetings of the International Union for Conservation of Nature this summer in Poland (June 15-24 in Warsaw and Cracow) and while in Europe to spend a good deal of time in conferences and in the field with leading conservationists of many nations. The opportunity to visit and inspect a number of the natural areas that have been acquired and are administered by the British Nature Conservancy was especially rewarding.

At about the same time, Bayard Reed, Mrs. Richard V. N. Gambrell, and Roger Tory Peterson were representing the National Audubon Society at the 12th Conference of the International Council for Bird Preservation held in Tokyo, Japan. This Council reminds us on its letterhead that it was "Organized in 1922 by Dr. T. Gilbert Pearson, U.S.A." This was one of the great achievements of Dr. Pearson who, as you know, was our Society's chief executive officer from its organization in 1905 until his retirement in 1934.

Actions taken at these conferences on opposite sides of the Globe show a remarkable unity of concern and thinking among conservationists throughout the world. What is happening to the great and once teeming fauna of Africa is of common concern. The IUCN (International Union for Conservation of Nature) assembly voted to launch a special African project and called upon the operating arms of the United Nations—FAO, UNESCO, and CCTA—for guidance and help. This project "would be designed to inform and influence public opinion, through its leaders and responsible persons in the governments (of Africa), that the application of conservation practices, based on ecological knowledge, is in the best interest of all African countries."

The program would include a field mission in Africa started as soon as possible, a special conference there in 1961, and the next general assembly of IUCN to be held in Africa in 1963.

Two IUCN resolutions had a familiar ring to Americans. They urged that other means be sought to satisfy energy needs in the Scandinavian countries and in parts of Japan in order to protect certain streams and national parks that are of "high scientific, educa-

tional, recreational, and scenic value." These areas are threatened by proposed hydroelectric development.

Both the meetings in Poland and Japan called for protection of the unique antarctic fauna and recommended setting aside preserves for the penguins and other wildlife. Hope was expressed that the proposed Antarctic International Treaty would provide for conservation regulations.

Both meetings also took note of pesticide dangers and urged greater research and an exchange of knowledge between scientists working on chemical and biological controls and those concerned with nature protection.

The ICBP (International Council for Bird Preservation) at its meeting in Tokyo, recommended actions in various nations to tighten the controls on commercial traffic in caged birds, feathers, and small birds as "delicacies." IUCN sees this traffic as a "major threat to the existence of some rare animals." The West Indies flamingo is an example.

ICBP called attention to the plight of the great Indian bustard, now in danger of extermination, and asked its different sections in nations around the Pacific to work for international treaties for the protection of migratory birds. The endangered bristle-thighed curlew, which nests in Alaska and migrates to South Pacific areas, illustrates the need for such international protection.

The assembly in Japan called upon all countries to give "special emphasis to instruction, especially in the primary schools, on the importance of conserving birds, other wildlife, the beauties of the countryside and landscape, and the balance of nature." This advice is well taken in the United States; the significance of our Audubon Junior Program has never been greater.

I am grateful for the opportunity my observations in Europe gave me to put our own problems into perspective. It is gratifying but sobering to note how the older nations of Europe and Asia are looking to America for conservation leadership.

At a meeting with staff members of the British Nature Conservancy prior to my departure from England, Dr. Max Nicholson, the director-general of this important government agency, asked me to comment on my observations. I replied that while it is hazardous to generalize on the basis of such brief observations, I had concluded that a larger percentage of British citizens than Americans are knowledgeable and articulate in natural history. On the other hand, I expressed my opinion that America has a larger percentage of *conservationists*.

By *conservationists* I do not mean expert birders or persons able to identify the plants with high precision. I mean persons who couple their interest in nature with a readiness to roll up their sleeves and fight for the cause.

The size, the militancy, and the effectiveness of America's conservation organizations have long been a source



of wonder and admiration to the dedicated officials of other nations. Too often those officials have had to fight for conservation of nature without adequate public support.

### Rainbow Bridge, New Point of Attack

Conservationists must gird themselves for another fight to prevent a despoiling invasion of the National Park System. In this case it is a backlash from the Colorado Storage Project, the authorizing legislation for which was passed only after the bitterest, and most celebrated, conservation battle of the past quarter century. It was a battle fought over precisely the same issue: the integrity of the National Park System.

Conservationists won that fight—at the time. Proposed Echo Park Dam in Dinosaur National Monument, the *cause celebre*, had to be eliminated before the bill could be passed. Moreover, Congress wrote into the Act a promise that no unit of the National Park System would be invaded by the Upper Colorado reclamation development and, specifically, that “as part of the Glen Canyon Unit the Secretary of the Interior shall take protective measures to preclude the impairment of the Rainbow Bridge National Monument.”

Glen Canyon Reservoir is now under construction. Unless the promised protective measures are carried out, the impounded waters will periodically stagnate around the base of Rainbow Bridge, and periodically recede, leaving an ugly deposit of mud and debris.

Engineers have designed a small dam down-canyon to keep the backwaters out of the National Monument and a tunnel to carry natural drainage around. Secretary of the Interior Fred A. Seaton asked Congress for \$3.5 million this year to start work on the protective measures. Congress turned him down cold, although it voted \$61 millions for 1961 construction work on Glen Canyon Dam and other parts of the vast Upper Colorado reclamation program.

The massive sandstone arch known as Rainbow Bridge, carved over eons of time by forces of erosion about as incomprehensible to the mind of man as the mystery of space, is one of the grandest works of nature in North America. Yet reclamation interests are fighting the measures necessary to protect it. They call it a “boondoggle.” If they win this one, and the promise in the Colorado Storage Project Act is scrapped, their next move will be another try for Echo Park Dam.

### Hugh H. Bennett — One of the Great Ones

Dr. Hugh Hammond Bennett, organizer and moving spirit behind the Soil Conservation Service which was born in the dust-bowl days of the “dirty thirties,” died July 7 at the age of 79. By propaganda and education, by science and demonstration, by administrative genius and by the sheer drive of personality, he made war on soil erosion and land abuse. He changed farming habits and traditions that had survived through generations. “To plow a straight furrow” ceased to be a mark of skill or virtue; good farmers learned to plow curving furrows around the hill. Good farmers also learned that not all land was meant by nature to be plowed, or even pastured! Some should be planted in trees or kept in marsh, some left to shelter wildlife.

I have heard students of history rank “Big Hugh” along with Gifford Pinchot, builder of the Forest Service, and Stephen P. Mather, designer of the National Park System, as one of the greatest professional conservationists of our century. No doubt about it, he was one of the great ones. And aren't we happy now that our Society recognized Hugh Bennett's contributions to conservation by awarding him the first Audubon Medal in 1947!

### You Can Do Something About Billboards

Last February *Harper's Magazine* carried an article on the “outdoor advertising” problem by Howard Gossage, a San Francisco advertising man. Mr. Gossage put forth the suggestion that the only way to deal with billboards is not by trying to regulate them but by abolishing them outright. His argument is that the billboard industry has no right to exist because it is selling something it doesn't own—your field of vision. It is not an advertising medium like TV, magazines, or newspapers, because it doesn't provide information, entertainment, or anything else the customer wants. Worst of all, Mr. Gossage pointed out, billboards are an outrageous invasion of privacy because they inflict themselves on you without your permission and, unlike any other kind of advertising, they are inescapable.

At the end of his article, Mr. Gossage presented a little ballot, inviting readers to mark it for or against billboards and mail it to him.

In the June *Harper's*, the editor reported on the results of Mr. Gossage's straw vote. At last count, 1,950 had voted for abolishing billboards and 411 for keeping them. Among the billboard proponents were 187 who didn't use the printed ballot, but signed their names to a printed form letter and used identical envelopes, nearly all mailed from the same city. Harper's concluded some angry billboard men did an organization job in that city. It was the same kind of operation carried out in many parts of the country that caused Congress to water down and almost fail to pass the modest billboard-regulation law two years ago.

Many of the anti-billboard voters wrote individual letters inquiring what they could do to help. To these inquiries, Mr. Gossage replied with this suggestion:

“If you don't like billboards, tell the people who advertise on them!”

Most advertisers are surprisingly sensitive to the feelings of the customers they are trying to attract. One big oil company already has stopped advertising its gasoline on billboards, Harper's reported, and other firms undoubtedly would do the same if they realize such ads lose customers and cash does count.

I think the Gossage suggestion for a cure makes sense. It is the kind of remedy that can be applied very well by the sensitive readers of *Audubon Magazine* who, I venture to say, resent the commercial clutter that has despoiled natural beauty along nearly every highway in America.

Take along a pocketful of stamped postcards on your next trip. When you stop for coffee or lunch, write notes of protest to the presidents of the firms whose billboards have annoyed you. If you can't find the address of the company's main office, send it care of the nearby branch or dealer, usually to be found in the local telephone directory.

—THE END

# VALLEY OF THE FOSSIL INSECTS

Photographs by the author

The author fossil hunting at Florissant.

By Edwin Way Teale

CLIMBING into the mountains west of Colorado Springs, my wife, Nellie, and I came to the village of Florissant and turned onto a dirt road down a narrow valley nearly 8,200 feet above sea level. In the summer sunshine, that morning, the valley floor was gay with the red of Indian paintbrush and the blue of gentians. America's most famous mountain, Pike's Peak, towered in massive silhouette 15 miles to the southeast. Less than 20 miles ahead lay the historic gold fields of Cripple Creek. Here in this pleasant valley, treasure, too, had been mined—treasure of a different sort. In museums around the world Florissant is famous as the valley of the fossil insects.

Somewhere between 10,000,000 and 25,000,000 years ago, when the waters of a shallow lake covered the land, and palms and sequoias grew along the shore, the sky above was darkened by the volcanic ash of a succession of violent eruptions. Sifting down through the air and water, this fine material hardened into layers of shale, some paper-thin, on the bed of the lake. Between these layers, as on the pages of a giant illustrated book of the past, the insects of the Miocene were preserved as fossils. More than 30,000 specimens, embracing well over 1,000 different species, have been unearthed here. Approximately one out of every 12 kinds of prehistoric insects known to science have come from this one small valley in Colorado.

But the fame of Florissant—pronounced *Flor-sent* by the natives of the region—rests not only in the number and variety of its fossils but on the perfection of detail they have retained. Minute features of even the frailest insects, gnats, and mosquitoes and soft-bodied plant lice, have been kept through the ages. In some instances, the individual facets of the compound eyes can be detected with a simple hand lens. In others, the feathery gill-tails with which nymphs of some of the smaller dragonflies obtained oxygen from water of the Miocene have been preserved in the minutest detail. Dragonflies of stone, fossil insects that darted about on veined wings in the sunshine of at

least 100,000 centuries ago, have been found in half a dozen species in the layered shales of Florissant.

Fossil trees rather than fossil insects originally attracted attention to the valley. From the Ute Indians, early pioneers heard tales of great white trees of stone. They investigated and found the petrified stumps and trunks of immense sequoias, one of them credited with being the largest fossil tree in the world. In the early 1870's, the first scientific group, a party of government geologists, explored the valley. Soon afterwards, Dr. Samuel Hubbard Scudder, entomologist of Cambridge, Massachusetts, and the American authority on grasshoppers, began a serious study of the insects of the Florissant shale. For decades he delved among these creatures of the Miocene. In all, Scudder gave names to 233 genera and 1,144 species of fossil insects. His classic monograph, *The Tertiary Insects of North America*, appeared in 1890.

In the intervening years, many men have come to this insect Pompeii to search for victims of those ancient volcanoes. Their finds are scattered through museums and centers of learning in many parts of the world. At present the "white trees" of the Utes, the "petrified stumps" of the pioneers, the fossil-bearing shale of Scudder, can be visited in two adjacent areas, the Colorado Petrified Forest and the Pike Petrified Forest. They lie about 35 miles west of Colorado Springs, near the southern extremity of the Front Range of the Rockies. Both are privately owned. For a relatively small fee, visitors can examine the trees and stumps of stone, can dig among the layers of shale and can even keep whatever specimens they find. The deposits of the ancient lake underlies many square miles of the valley, but in these two places the fossil-bearing layers are most readily accessible.

We came to them first that morning, and we were drawn back more than once during our days in Colorado. We walked among the petrified trees. We inspected the largest fossil of its kind on earth, a sequoia stump 74 feet in circumference. But it was the layers of shale, ranging from white to chocolate-brown, that absorbed our attention most.

Where embankments had been cut away, the strata lay exposed like the pages of a book lying on its side—pages of unequal thickness. In sep-

Copyright 1960 by Edwin Way Teale. A chapter from his forthcoming book, "Journey Into Summer," to be published by Dodd, Mead & Company in October 1960.



Wide view of the country where the fossils were unearthed, near Florissant, Colorado, northwest of Pike's Peak.

Three fossil stumps, each more than six feet in diameter, unearthed at Florissant.





arating extracted pieces of the layers, visitors have employed a wide variety of impromptu aids — screwdrivers, pincers, nail files, shovels, chisels, jackknives, and razor blades. On our first visit, we used a pocketknife; later we brought along a sharp-pointed prospector's pick to help pull out portions of the shale. The rock is rather soft and the most productive layers split apart easily. Not infrequently, the strata were so weakly cemented together we could pull them apart with our hands. When the shale is dry, we soon discovered, the fossils are easier to see.

The richness of the Florissant deposits has been a constant source of amazement to scientists. During one summer in the 1870's, Scudder obtained more than twice the number of fossil insects than the German scientist, Heer, found in 30 years of searching at the famed Bavarian

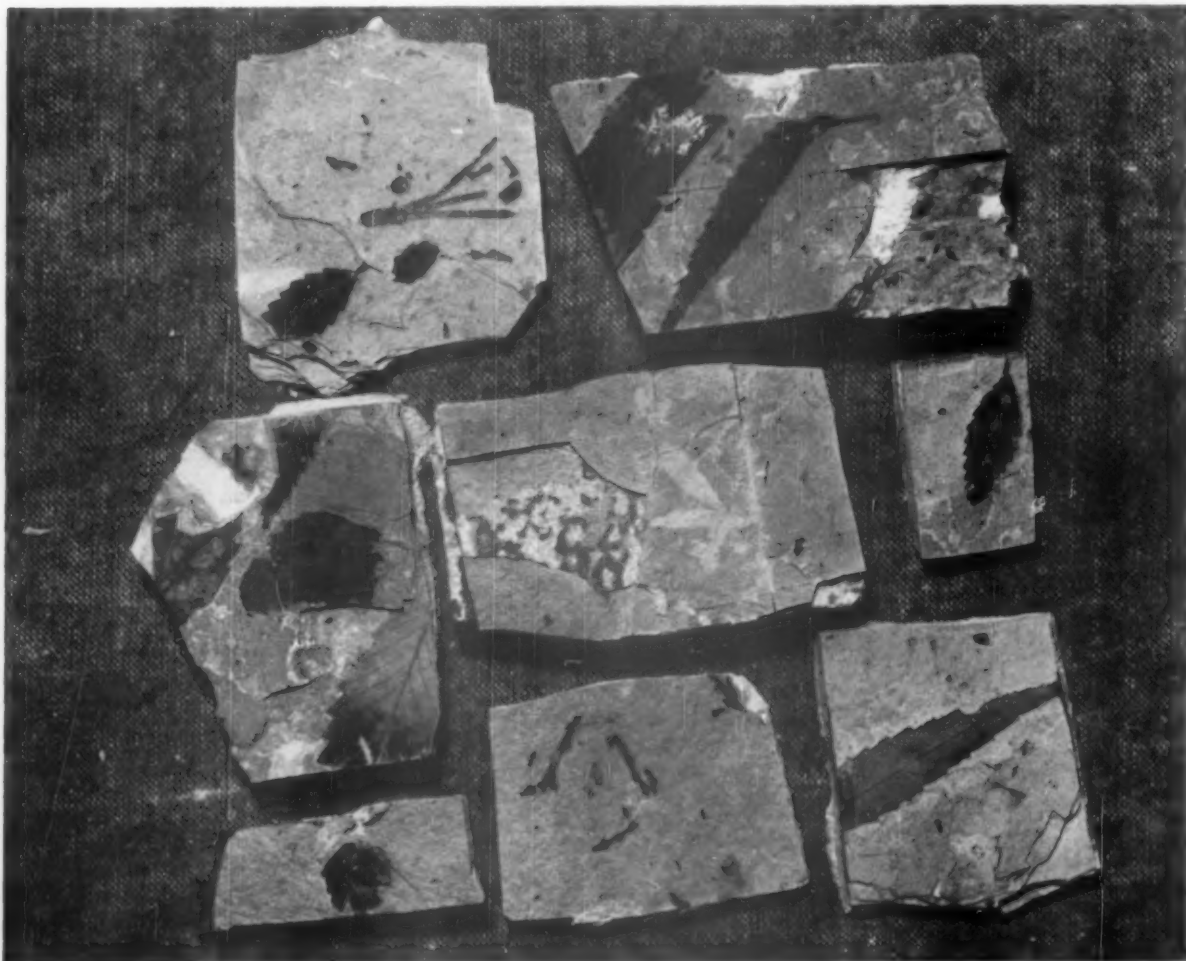
quarries of Oeningen. In 1912, Professor H. F. Wickham, of the University of Iowa, dug a trench about 20 feet long and six feet deep. From it he obtained well over 90 species of beetles, more than 40 of them new to science. On several occasions, pieces of shale no larger than an outspread hand have contained several insects preserved close together. This does not mean, of course, that every piece of shale—or every thousand pieces of shale—split apart will contribute a prize.

But nobody knows what will come next. *This* may be the one! Digging for these mementos of the past is like picking up sea shells on a strange shore. It becomes an engrossing game. We lost track of time. We dug with a kind of fossil fever, prospector's excitement. With a pocket magnifying glass, we examined each spot and stain. Scudder

found that the most numerous of all insects at Florissant—as they are in the world today—were the ants. He collected more than 4,000 ants of 50 different species. They represented about 25 per cent of his total. A dozen times, we thought we had discovered ants. But the magnifying glass refused to be fooled. It expanded the small, dark spot into a bit of leaf or bark.

For fossils of the prehistoric vegetation are the most common of all. In various collections, I have seen the leaves of ferns, of roses, of iris, of elm and chestnut and poplar, sumac and tree of heaven, of balloon vine and the Oregon grape, all obtained from Florissant shale. A complete cattail head, on which some ancient dragonfly may have rested, is imprinted on one rock. Nuts and pine cones and rosebuds and even the delicate petals of wildflowers are

Some of the fossil leaf prints discovered between layers of shale.





Arrow points to the pale outline of a fossil crane fly.



A living crane fly of the present day.

numbered among the Florissant fossils. Living representatives of some of the plants now grow in China, Mexico, Norway, and the West Indies. Between the layers of shale have been found the skeletons of fishes and birds—one a finch, another a plover—as well as fossil tracks and fossil feathers and the small petrified shells of fresh-water mollusks.

Each time we split away a layer of shale and revealed some fragment of an ancient plant, we were letting the first ray of light strike it in millions of years. It had been entombed, just where we found it, since before the ice ages. On the afternoon of our first day at Florissant, a piece of light-hued shale produced our best botanical find. It split apart in my hands and revealed a perfect leaf, elongated and serrated. It seemed, at first glance, to have come from a birch. Later, when I compared it with the collection at the University of Colorado, at Boulder, I found it had grown on a prehistoric water elm.

As we looked up from examining this leaf, we were surprised to see a bison with a tan-colored calf leading 20 or so black Angus cattle across a neighboring pasture strewn with blue gentians. I glanced from the

gentians to the bison to the leaf contained in the rock I had just picked up. Time was linked together in a great triangle by the flower of today, the bison, symbolic of another generation, and the leaf that had formed its chlorophyll under the sun about which this globe had whirled millions and millions of times before the fossil of its tissues had to come to light again. That fossil is preserved—as are all the specimens at Florissant, both insect and plant—in the form of a thin film of carbonaceous material.

It was not always that such objects aroused scientific interest alone. During the long Dark Ages of the human mind, fossils excited fear and superstitious dread. They were believed to be the product of some mysterious "plastic force" or, more often, "devices of the Devil." The eighteenth century was well along before the true nature of fossils was widely recognized.

Among the early collectors of these relics of the past, there appears the somewhat pathetic figure of the German schoolmaster, Johannes Beringer, of Würzburg. An avid fossil hunter, he took his students on frequent field trips to a nearby outcropping of soft shale. One day, as a

joke, his pupils carved the image of an animal on a bit of rock. Their credulous teacher pounced on it with such enthusiasm that the hoax continued. Each subsequent field trip yielded greater treasures—frogs, flowers, insects, mammals, even astronomical objects. In 1726, Beringer published his "*Lithographia Würzburgensis*," an elaborately illustrated volume describing all his finds. Shortly afterwards, he discovered rocks containing Hebrew letters and then one with his own name inscribed on it. This was more than even his credulity could stand. Too late he realized he had been duped. In an effort to buy back every copy of his book, Beringer spent his life savings and died in poverty. Even so, his story has the ironic semblance of a happy ending. After his death, his family recouped their fortunes by selling the copies of the book as a rare curiosity.

Each time we dug at Florissant, grasshoppers danced in the sunshine before the walls of layered shale. They jiggled up and down as though dangling on rubber bands. Red-shafted flickers called and flew over us, turning in the air and bursting into flame as the sun struck the under plumage of their wings. Pigmy

*Continued on page 239*

# The Aullwood Audubon

More than 40,000 school children have visited the Society's newest children's center, dedicated to "opening the eyes of the young and old to the wonders of the outdoor world."

By Thomas P. McElroy, Jr.\*

SHARON SMITH was busy turning over rocks in the stream bed searching for crayfish and salamanders. She stopped suddenly and looked up at her fifth grade teacher, her eyes shining with excitement. "This is wonderful!" she exclaimed. "It's the best field trip I've ever had!"

Sharon's enthusiasm for outdoor adventuring has been shared with over 40,000 children from the Dayton, Ohio area since the opening of Aullwood Audubon Center a little more than two years ago. The Society's newest children's center was dedicated on November 2, 1957 to the important task, as stated by John H. Baker in his dedicatory address, "of opening the eyes of the young and old to the wonders and beauties of the outdoor world; of making them aware of the steady stream of life going on around them; of its richness and complexity and, above all, of the fact that they are a part of this exciting pageant of events." This objective is pursued daily at Aullwood through the medium of a unique program that provides fun and adventure for school classes, scout troops, and other youth organizations.

The initial inspiration for Aullwood was born out of love and de-

\*The author is managing director of the Aullwood Audubon Center for the National Audubon Society. He is the author of the "Handbook of Attracting Birds," published by Alfred A. Knopf, New York City.—The Editor

"The crayfish he finds is more than a bait for fishing." (Note the mud chimney of this crayfish at bottom of picture.)



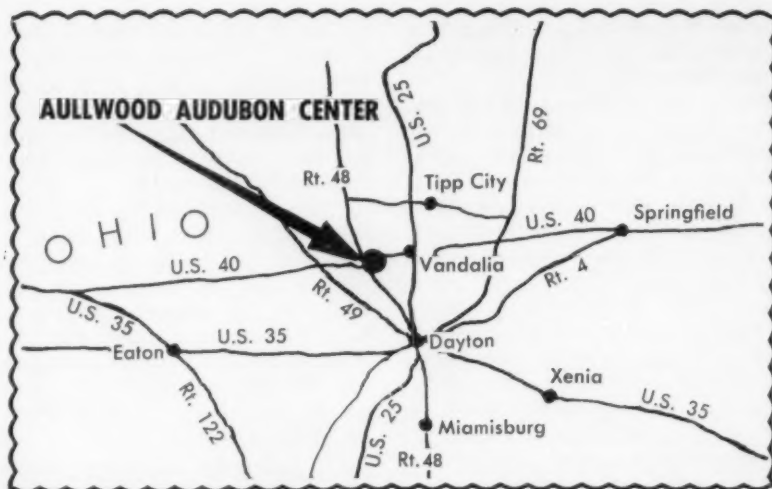


# Center

*All photographs by Bob Doty*

sire—a love for the outdoors and all living things therein, and a desire to share this deep appreciation with the community and its future generations. In 1924, Mr. and Mrs. John Weston Aull of Dayton, Ohio,

"The large groups of visiting school children are divided into smaller units for the field trips."



established a wildflower and wildlife preserve in the gardens and woodlands surrounding their home. Their interest and enthusiasm for this area was shared continuously with the public, the gates always being open to visitors. In April of 1956 Mrs. Aull wrote to the National Audubon Society stating: "My husband and I had often discussed ways and means of assuring ourselves that this property might be permanently maintained as a plant and wildlife sanctuary and at the same time serve the public educationally. Would the National Audubon Society be willing to accept the property, with an adequate endowment fund for its maintenance, and assume the responsibility for the program and its management?"

Through the generosity of Mrs. Aull, 70 acres of land just 10 miles north of Dayton were donated to

the Society for the purpose of establishing a children's outdoor educational center—a center that would provide youth with opportunities for inspiration and recreation as they learned to interpret the world about them. Final arrangements and plans for the Center were completed by the end of 1956. Now that the agreement had been concluded, enthusiasm for the new Center ran high; the opening date was optimistically set for the following fall. This was a most challenging goal for me when I arrived May 1 to assume the duties of managing director.

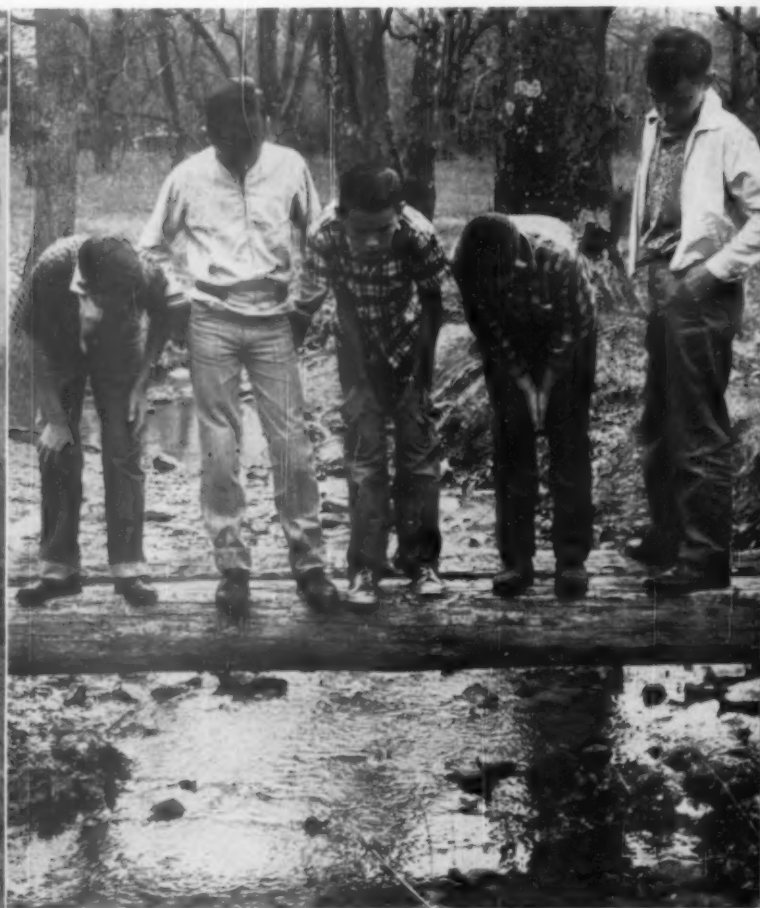
The spring bird chorus of mornings in May was soon accompanied by the staccato of the carpenter's hammer as old farm buildings gave way to new architectural designs. A large main building, to be known as the Children's Center, was planned

around the foundations and supporting structures of the old barn. The brick farmhouse, typifying the inherent charm of early Ohio homes, was to be repaired and three new homes were to be constructed to house the resident staff.

As springtime succumbed to the hot dry days of summer, the tempo of activities increased. The season became one of drought in the Midwest and a pallor of dust hung over the Stillwater Valley as bulldozers and earthmovers completed grading essential to driveways, parking lots, and landscaping. Carpenters, plumbers, electricians, painters—all in turn—busied themselves about the place in a manner remindful of bees about the first blossoms of spring. A landscape architect hurried hither and yon driving stakes in a predetermined pattern indicated by the roll of blueprints under her arm—a

"Remnants of the old forest remain." Dorothy Treat, Educational Director, measures the trunk of a giant oak tree.

"This is where the fun begins. Youngsters are encouraged to observe and experience the relationships in the world about them."



planting plan was keeping pace with other developments. Time and speed became increasingly important factors as the dedication date was announced for November 2. In the meantime, Miss Dorothy Treat, of Audubon House, New York City, a staff member long active in the Society's instructional programs, was announced as the Center's educational director. Two additional naturalists were to be added to the staff by opening date.

Aullwood's landscape reads like pages from a history book. Its surface is covered with a layer of glacial till and is underlaid by a bed of limestone indicative of seas of eons ago. The land is on the high edge of an eastward slope of the earth's crust. The limestone layer is near the surface and is easily exposed by the waters of Aullwood Brook and the Stillwater River. Along the

banks of these two streams one can walk on the bottom of ancient oceans paved with the fossilized life of the Ordovician era. Fossil brachiopods, bryozoans, crinoids, corals, and members of other phyla in the earth and rocks, reveal the very beginning of life on earth.

The soil of the area is conducive to hardwood forests and farming. Aullwood was once completely forested but was engulfed in the great push of humanity westward in search of new and more fertile farmlands. Remnants of the old forest still remain—oaks that were already more than a century old when President Thomas Jefferson gave the land to Daniel Shively of Philadelphia for service rendered in the War of Independence. A variety of habitats, woodlands, meadows, fields, wetlands, and a small spring-fed stream, typify the terrain of western Ohio;

thus, the area is ideal for interpreting natural features of the local environment. It also attracts a diversity of wildlife. More than 150 species of birds have been observed on the property since opening date. A nesting census revealed that the indigo bunting and the red-winged blackbird are the two most common nesting species.

The plantlife of Aullwood is equally abundant and attractive. Some 90 species of trees have been identified on the Center property and Mrs. Aull's adjoining 30 acres. Wildflowers bloom in profusion—from the woodland carpets of mertenisia, bloodroot, and trillium in the springtime, to the ravines blue with lobelia in the fall. Identified species number in the hundreds.

A series of trails traverse the property, making all areas accessible for teaching purposes. One trail in par-

"When the field trips are completed, groups return to the Children's Center." A teacher, with her students, examines a snake.







"At the Center, children enjoy the exhibits and games that add to their learning experience."

ticular, the Nature Trail, encompasses the area's most outstanding natural features. Attractive labels and explanatory signs provide visitors with an ecological interpretation of nature's story peculiar to this section of Ohio. They also make it possible for them to experience an informative self-guided tour of the trail.

Long-range management plans have been developed to provide for more complete and comprehensive teaching facilities. Portions of the property are to be maintained as natural areas—areas where succession and changes in plant and wildlife patterns can be observed. Other sections will be improved by wildlife plantings and additional water impoundments. The entire 70 acres are maintained as a plant and wildlife sanctuary.

As dedication day approached, our proposed program and facilities were introduced to the administrators of schools and directors of youth organizations. They were unanimous in their enthusiasm and assured us that the new Audubon Center would be a most welcome addition to the educational and cultural opportunities of the community. This interest was most ably expressed by Mr. Byron Morton, the Superintendent of Schools in Montgomery County when he stated, "Aullwood is indeed a most commendable endeavor—one that will contribute measurably to the enrichment of the lives of our children. I am certain that our schools will be most anxious to accept the opportunity of using its facilities."

Any anxiety that we may have had concerning the acceptance of our program by the community was short-lived. The first group was scheduled for November 18—the be-



"Attractive labels and signs along the Nature Trail provide an ecological interpretation of nature's story."

ginning of nearly 10,000 children to participate in our first year's program. More than 20,000 children visited the Center during the second year, and we believe even more will have come to the Center by the end of 1960.

The fun of exploring, the thrill of discovery, and the inspiration of trained leadership; these are the ingredients of a unique and challenging program for children that has won the enthusiastic endorsement of youth leaders and educators. Gone are the textbooks, the blackboards, and the formal recitations. In their stead is a classroom that encompasses the ever-changing panorama of all outdoors.

This program was formed with the advice and cooperation of school administrators. An "outdoor theme" was adopted and coordinated with each grade-level curriculum; thus, greater continuity is assured as successive grades visit the Center. This approach also enables teachers and youth leaders to coordinate their visit to Aullwood with appropriate grade-level activities. The teacher or leader is assisted in this by a packet of preparatory teaching aids that is forwarded with the final confirmation of the appointment at least two weeks in advance of their coming.

When a school class or group arrives at the Center it is met by a staff naturalist who serves as leader during the visit. Following a brief period of orientation, the group is divided into smaller units of not more than 20 children per instructor for the actual field trips. This is where the fun begins. The lecture-type of tour is avoided, and the child is encouraged to observe and experience the relationships in the world about him. He is guided toward an aesthetic appreciation of the out-of-doors and towards the realization that he, too, is a part of this environment of interdependence. Rocks and soils tell him the history of the land. The crayfish he finds is more than a bait for fishing; it now becomes a vital part of a stream community essential to his own well being. Insects, snakes, birds, mammals, and plants, all gradually fall into an understandable pattern of living.

When the field trips are completed, groups return to the Children's Center. Here they have an opportunity to enjoy the exhibits and games that add more fun to their

hour and a half learning experience. As they leave the Center, the teachers or leaders are given a "Take-Home-Kit" of follow-up teaching aids that will assist them in making the visit a continuing experience.

Conservation education is the essence of our Audubon philosophy. The Society, through its summer camps, Children's Centers, research projects, wildlife tours, Audubon Screen Tours, and similar educational activities, is making an extensive and significant contribution to-

wards the wise use and preservation of our country's resources. Aullwood is now a most important and definitive part of this program. As a recent editorial in the *Dayton Daily News* so poignantly stated, "One hundred acres could serve no finer purpose than to impart a deep affection for nature and to demonstrate the cold logic of survival." Perhaps it was more simply stated by the fourth grader who wrote following his visit, "I think it's all very worth wild."  
—THE END

**"Insects, snakes, birds, mammals, and plants, all fall into an understandable pattern of living."**



# BIRD FINDING WITH

*Sewall  
Pettingill*

**WHERE TO GO  
WHEN TO GO  
WHAT TO SEE**



## Texas

You cannot put Texas down. Having lost its distinction as the biggest state in total area, it comes up with another: the only state to have its own Peterson Guide! Recently published by the Texas Game and Fish Commission in Austin is Roger Tory Peterson's "A Field Guide to the Birds of Texas" (\$3.00; order directly from the Commission). This is no halfway job, no combining and reworking of his eastern and western guides to suit the peculiarities of the state's avifauna, but a completely new book, with many new drawings and plates in the famed "Peterson style," and written specifically for Texas.

This most welcome book serves to point up yet another distinction of Texas: the state with the greatest variety of birds. At least 542 bird species (all covered by the book) occur as either nesters, visitors, or transients. Since about 25 of them can be observed nowhere else in the nation and many others only rarely, you can understand why an ardent bird finder must sooner or later head for Texas and why in this column I very frequently have suggestions for bird finding in that state.

When I was preparing my Guide to Bird Finding West, I was unable to locate anyone who could give me precise information on the San Antonio area. Recently, however, dur-

ing a visit to the city, I met an enthusiastic young bird watcher, Charles R. Bender, who provided me with the long-needed knowledge. I am indebted to him for the information given below.

## San Antonio

The immediate vicinity of San Antonio has a variety of terrain and bird habitats. The southeastern edge of the Edwards Plateau lies northwest of the city, and a mixture of farmland and semi-arid brush country extends southwest from the city for many miles. The area east of San Antonio is largely cultivated and has numerous ponds and "tanks."

For a trip into the Edwards Plateau, take the so-called Scenic Loop by starting out on State Route 16 west to Helotes and turning right at the Scenic Loop sign. The stream which the Loop road crosses a number of times is flanked by cliffs—a breeding habitat for many cañon \* wrens. Other birds to be expected along the road in the nesting season are the scissor-tailed flycatcher, eastern phoebe, Bewick's wren, house finch, and lesser goldfinch. Seven and a half miles from Helotes, at an intersection, the Loop road makes

an abrupt turn to the right. This may be taken to US Route 87 and back to San Antonio. However, if you wish to go farther for birds, you have two choices. (1) Turn left onto Beauregard Road (dirt surface). Between this point and the town of Boerne (30 miles from San Antonio), where it joins US Route 87, Beauregard Road traverses sparsely settled country where you may see scrub jays, vermilion flycatchers, and black-crowned night herons. You may also see some of the introduced spotted deer. (2) Proceed straight ahead to Route 87 just south of Boerne. Though rarely seen from the road, both black-capped vireos and golden-cheeked warblers are known to be summer residents in suitable habitats along the way. They are more readily discovered by listening.

Mitchell Lake and vicinity south of San Antonio should yield numerous birds in any season. The lake may be reached by driving south on Pleasanton Road for five miles from its intersection with the Military Highway. (A word of caution: Pleasanton Road turns abruptly to the left at a drive-in theater and the main road becomes Moursend Boulevard. Stay on Moursend Boulevard as Pleasanton Road eventually rejoins it.) Although the property around the lake is privately owned, permission to look for birds in the area is usually granted. Bird finding

\* The American Ornithologists Union in its "Check-list of North American Birds," Fifth Edition (1957), has not anglicized the spelling of cañon. It is canyon wren in Webster's Unabridged Dictionary, 1960 edition.—The Editor



from the car is ordinarily quite productive. Many sandpipers, American avocets, black-necked stilts, and Wilson's phalaropes frequent the edge of the lake in the late summer and early fall. Later in the year, except during the duck-hunting season, and through the winter, the lake has a small aggregation of waterfowl. A burrowing owl or two can usually be seen in the cultivated fields bordering the lake. During the spring and summer there are many land birds to be looked for in the brushy areas. These include the verdin, Bewick's, Carolina, and cactus wrens, curve-billed thrasher, orchard and Bullock's orioles, pyrrhuloxia, blue grosbeak, painted bunting, and black-throated sparrow.

Within the limits of San Antonio are two city parks—Brackenridge and Olmos—that offer good bird finding. Brackenridge Park may be reached from the center of town by following Broadway north to the Witte Museum in the park. The best place for birds is the eastern section, which is heavily wooded and has many trails and bridle paths. Besides such common birds as golden-fronted and ladder-backed woodpeckers, mockingbirds, and cardinals, there are a few long-billed thrashers. Black-chinned hummingbirds often nest. Brown thrashers, hermit thrushes, rufous-sided towhees, and other northern birds winter in the area. The San Antonio Zoo in Brackenridge Park has an especially fine collection of birds, including one of the very few whooping cranes in captivity.

Olmos Park, north of Brackenridge Park, may be reached by continuing north on Broadway to Hildebrand Avenue and turning left. At the intersection with Devine Road, turn right to the park. Here, west of the picnic area, is a wooded hillside with trails from which you may observe such breeding birds as yellow-billed cuckoos, black-crested titmice, verdins, Carolina wrens, white-eyed vireos, summer tanagers, painted buntings, and most of the species to be found in Brackenridge Park.

#### Houston—Galveston

From the Houston-Galveston area, Victor L. Emanuel has sent me some news about greater prairie chickens and cattle egrets.

In 1959 a "colony" of prairie

chickens was discovered along Fondren Road within the city limits of Houston. On numerous occasions in the spring, members of the Houston Outdoor Nature Club watched the birds booming at close range. Fondren Road (shell surface) starts north from US Route 59, 8.7 miles southwest from the Shamrock Hilton Hotel. After crossing a railroad track, it passes grassy pastures. In these places on either side of the road, for 1.8 miles beyond the railroad track, small groups of chickens boom during the early morning and late evening from the last week of February through April. Although booming time varies, depending on the weather, usually the birds are active from daybreak until 8:30 a.m., sometimes until 9:30 or 10:00 a.m., and at sundown.

Cattle egrets are now of regular occurrence on Galveston Island, as many as 40 at a time being seen in the late summer and fall. Two of the best places for these birds can be

located by the ensuing directions supplementing those in my Guide to Bird Finding West (pp. 532-534).

(1) Take S Street Road (Stewart Road) west to Eight Mile Road, which leads to West Bay Fishing Camp (a sign points to the camp and a marker indicates Eight Mile Road) and turn right. Proceed on Eight Mile Road toward Galveston Bay until you see a large sign on your right marking the entrance to Romain III Ranch. At this point look for the cattle herds which attract the birds. (2) Continue west on S Street Road, to the point, about 12 miles from Galveston, where it turns abruptly left to West Beach and ends. Between this turn and the start of a new paved road (Termini Road) to the right as you go toward the beach, you will notice a small pond on your right. The egrets accompany the cattle that often drink at this pond. You can observe the birds at close range from your car.

— THE END

## Guy Emerson Honored



Guy Emerson

and peace, as an imaginative and active influence in the affairs of a great Foundation devoted to securing wider appreciation and sharing of profound and eternal human and spiritual values—you have earned recognition as one of this country's great citizens."

An honorary degree of Doctor of Letters was conferred upon Guy Emerson, a past president of the National Audubon Society, by the University of Arizona at commencement exercises in Tucson on June 1, 1960.

In conferring the honor upon the distinguished New York businessman and civic leader, University President Richard A. Harvill said, in part:

"Because of the range of your brilliant and versatile accomplishments—as an eminently successful business executive, as an exemplar of wisdom and fidelity in high positions of public trust to which you have dedicated yourself so generously and unselfishly during both war

Mr. Emerson served as president of the National Audubon Society from 1941 to 1944 and in various other offices including that of treasurer during 18 years on the Board of Directors. He was named honorary president upon his retirement from the Board in 1954. One of his publications is "The Birds of Martha's Vineyard," co-authored with the late Ludlow Griscom.

Mr. Emerson is perhaps best known nationally for his work as vice-president and art director of the Samuel H. Kress Foundation, having been instrumental, among other achievements, in the enrichment of the Kress Collection in the National Gallery of Art in Washington, D. C.

## OUR AMERICAN STORK

*Continued from page 209*

strengthening it in preparation for the hatching of the young.

After about a month of constant incubation the parents no longer sit on the eggs all of the time. Instead they stand on the nest and peer intently at the eggs. This is a good sign that hatching is in progress. Because incubation began with the laying of the first egg, the young hatch over a five- to six-day period. This occurs in many birds which are dependent on a variable food supply. In years of plentiful food all the young survive but in years of short supply the smallest young, last to hatch, cannot compete with their larger nest-mates and they quickly die. This phenomenon, at first glance rather grim, insures that the maximum number of healthy young will be produced each year. If all the young hatched at once, all might obtain equal shares of the inadequate food supply and all succumb instead of only a few.

Just after hatching, young storks are nearly naked and quite helpless. They have short, yellow bills and spend most of their time lying quietly in the nest. Within ten days to two weeks, they are covered with a woolly white down and take more of an interest in their surroundings. Unlike their parents they are quite noisy, uttering a high pitched nasal "Nyah-nyah-nyah" almost constantly during their early nest life. This becomes deeper and louder as they grow.

During the first three weeks of life, one or both of the adults are almost always with the young. After the first week the adults do not brood them except during rainy or very cool weather. However, they shade them from the sun and protect them from the attacks of wandering bands of unmated storks. These marauding groups, probably made up of subadult\* birds, roam through the colony often attacking occupied nests, driving off the parent and destroying the eggs or young. In dense colonies this probably presents no problem as the neighbors help in repelling the attacks. In smaller, less dense colonies, however, these destructive intruders may be the number one cause of nest losses.

\* A term usually applied to immature birds that require more than one year to reach maturity.—The Editor

After occupying a nest for several hours, these "brawlers" lose interest and leave. An abandoned nest is very short lived. The neighboring birds pilfer the sticks and it generally lasts only about half a day before being picked to pieces. If after one of these attacks only the eggs are destroyed and the nest remains intact, the parents will lay a second set within a week and continue with the normal cycle.

By the time the young storks are three weeks old they are more than half the size of their parents. At this age they show the first signs of hostility toward strange objects and become formidable opponents for any animal, other than their own parents, which may come within reach of their bills. Up until this age they are quite docile and show no fear or aggressiveness against anything that they see, however, they do react to loud noises. The half-grown young will attack viciously with their sharp mandibles and can inflict painful wounds. They also have the habit of disgorging the contents of their stomachs when alarmed. This makes working with them somewhat distasteful but simplifies the study of their food habits.

Unless disturbed, the young storks remain in the nest until about 50 to 55 days old. They are then fully grown and feathered and ready to take to the air for the first time. During the latter part of their nest life the young birds spend much of their waking hours exercising their wings and jumping up and down in the nest. In a crowded nest containing three or four young, the birds take turns practicing while their nest-mates stand to one side and watch. When able to fly, the fledglings make flights of increasing length at first from the nest to other trees but, as they gain strength, fly out of the colony to nearby ponds or marshes. For some time after they are able to fly (until at least 75 days old) the young storks return to the nest to be fed and to roost at night. Although a hungry youngster may follow a parent about the colony begging wildly, the adults seldom, if ever, feed the young anywhere but in the nest.

During the time the young are in the nest and completely dependent on their parents, they are fed 3 to 12 times daily. When small, they

are fed frequently with only small amounts of food at each feeding. When larger, they receive a greater amount of food but are fed only three or four times a day. The parent birds bring back food in their gullets and regurgitate it directly into the nest. The young storks pick it up for themselves from the start. It requires a tremendous amount of food to raise a family of young wood storks. A rough estimate shows that about 500 medium-sized fish (four to six inches long) or about 50 pounds of food, are consumed by a single stork during its stay in the nest. When this figure is multiplied by three or four young in each nest and by the thousands of nests in the Corkscrew Swamp Sanctuary, the demands of such a colony upon its feeding grounds reach gigantic proportions. Most of the species of fishes taken are of no interest to fishermen but fall in the category of "rough fish."

Besides bringing food to the young in the nest, the parents commonly bring water to them on hot, sunny days. A "watering visit" is quite different from a feeding. The parent arrives at the nest and instead of lowering its head as when giving food, it holds its head high with its bill above the heads of the young and drools several pints of water from its throat over them. Most of the water runs over the young storks, although some is swallowed by the nestlings. Such behavior is probably a necessity on days when temperatures are high and water losses of the young are considerable from their excessive panting and excreting.

We still know very little about what happens to wood storks after they leave their breeding colonies. Like other wading birds, they seem to have an outward and chiefly northward dispersal after the nesting season. This is the time when storks normally appear in states from Texas and Arkansas, all the way around the Gulf coast and up the Atlantic coast to North Carolina. Another group often comes into southern California and Arizona. Whether or not all these storks stem from the Florida colonies or not is yet to be determined. We have not been able to learn of any Mexican colonies which were long thought to be the source of Texas and Cali-

*Continued on page 252*

# Wild Lily: A RARE DESERT FLOWER

By Ida Smith

THE wild lily of the southwestern deserts presents a botanical mystery on first observation. Its little black seeds that look disarmingly like particles of charcoal, are unable to "drill" into the ground as some specialized seeds seem to do, yet the lily bulbs they produce are buried from 12 to 24 inches beneath the surface. Here they wait for a season of sufficient moisture to assure them a successful blooming season.

How many millenniums it took the desert lily to acquire these tricks of survival; the camouflaged seeds, the mechanics of obtaining deep hideaways, the long wait for sufficient moisture—and how near it came to extinction as a species before these techniques were achieved—no one knows. Possibly related species lost out in the struggle, for this lily is the only one of its kind.

During wet seasons when it blooms in profusion, its delicate fragrance is wafted across acres of isolated, arid land. It lives only in the sandy deserts of southwestern Arizona, southeastern California, and northern Sonora at below 2,000 feet altitude. In dry seasons one can search the desert for it in vain.\*

The desert lily, *Hesperocallis undulata*, is a perennial although it is propagated mostly by seeds. The tiny black seeds form in pods in the flower cup and are scattered by the wind after the flower has withered. How the bulbs become buried so deep is an engineering achievement. Probably the seeds sprout and send shoots down into the earth from which the bulbs then grow. The deeply buried bulbs are protected from the moisture of inadequate rainfall which might start them to sprout, but would not be sufficient to produce flowering and seeds.

For many generations the Papago

Indians hunted the lily bulbs for food. The early Spaniards called it the "Ajo" because of the bulb's likeness to garlic. In the region in southern Arizona where it grows the most profusely, the name was given to the town of Ajo, a mountain range, and a neighboring valley.

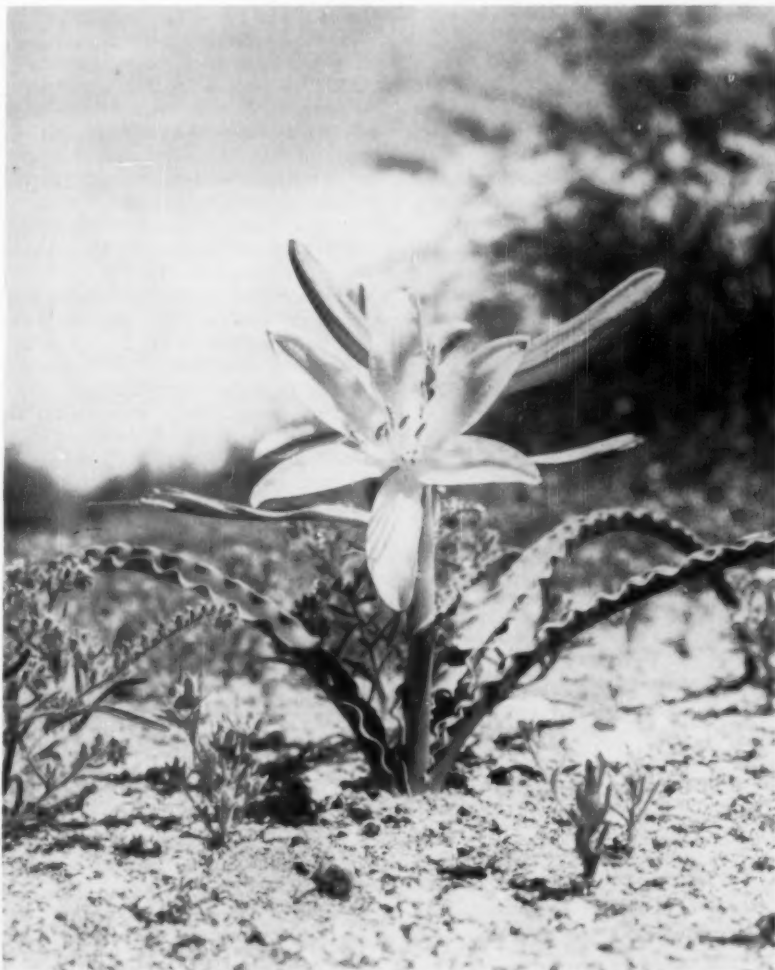
The lily blossom is about three inches long and glistening white inside. The outside is striped with pale-green and blue. A white pistil nestles among yellow anthers. From one to three blossoms grow on a stem. The stem and long, narrow,

crinkled leaves are blue-green with lightish borders.

In their desert surroundings it is not uncommon to find these exquisite flowers curiously circled in the sand as though some mysterious finger had marked them special. The circles, however, are made by the long leaves whipping around in the wind. These regal lilies are indeed special. They are unique among the desert flowers. Because of their resemblance to the greenhouse lilies, they are often called Easter Lilies of the Desert.

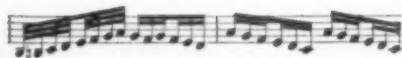
—THE END

The desert lily, *Hesperocallis undulata*, called by the early Spaniards, "Ajo." Photograph by the author.



\*"One of the most delicately beautiful of the whole lily family blooms amid the arid wastes of the California deserts; this desert lily (*Hesperocallis*) is often the sole form of life on barren sandy stretches baked dry by the desert sun."—Clarence J. Hylander, "The World of Plant Life," The Macmillan Company.





## Music and Bird Songs

SOUNDS FROM NATURE, WITH  
COMMENTARY AND ANALYSIS

"NOTHING sounds so weird and wonderful as the thrush at one-eighth speed," wrote the reviewer for the *New York Herald Tribune*.

James H. Fassett, Supervisor of Music for CBS Radio, used the tape-recorded voices of ten birds and six frogs to ring a series of fascinating changes.

\$5.00, *postpaid*

## An Evening in Sapsucker Woods

THE SONGS OF BIRDS AND OTHER DENIZENS OF A NORTHEASTERN WOODLAND

"A DELIGHTFUL record for the beginning and advanced bird watcher giving 32 identified bird calls along with many other woodland sounds," says *Science News Letter*.

Dr. Arthur A. Allen comments on the voices recorded at Sapsucker Woods, the wildlife sanctuary and research center of the Laboratory of Ornithology at Cornell University.

\$4.95, *postpaid*

10-inch, vinylite records, 33 $\frac{1}{3}$  rpm.

For further information on these and other wildlife recordings, write:

## Cornell University Records

A division of Cornell University Press  
124 Roberts Place, Ithaca, New York



## Attracting Birds



## Bird Boarders in the Southeast

By Alexander Sprunt, Jr.

THE establishment and maintenance of bird-feeding stations is a hobby, avocation, experiment—call it what you will—confined neither to the serious ornithologist nor the veriest beginner. The greatest adherents thereof are, perhaps, the legion of amateurs in bird-watching and study. Reasons for this interest vary. Some stations are maintained as a basis of intensive study and banding, some because of one's desire to find out how many species can be attracted thereto. Others simply for the reason \* that the "operator" likes birds about the place, without caring too much what kinds come and go, specifically.

Whatever the reason, the fact remains that many kinds of birds frequent these boards of bounty. Some are to be expected as a matter of course, others are of surprise occurrence. A complete list of bird species which have visited at feeding-stations in the Southeast (or anywhere else) would be, I dare say, astonishing. It might be difficult to produce such a complete list, nonetheless, we certainly know some of the boarders well enough.

There is no point of going into the kinds of feeding-stations that can and have been created here and there. They range from the simple to the elaborate. The structure, placement, and other details are abundantly supplied in current literature. What this article purports to do is to point out some of the birds

\* One of the reasons why many people attract birds is because of the usefulness of birds in the garden in helping to check outbreaks of insect populations. In a 10-year bird-attracting experiment in his Long Island, New York garden, your editor has never had to spray his trees and shrubbery because of insect damage. The hundreds of birds that came daily to his feeders spent much of their time hunting and eating insects in the garden. Also, by not spraying, predatory and parasitic insects were abundant and helped to keep in check insects that feed upon leaves and plant juices. In this way, one can practice biological control and watch the results.—The Editor

which can be expected at such stations in the general region of the South Atlantic and Gulf States, both coastal and inland.

It would be difficult to rate bird boarders in any 1-2-3 ratio of frequency at the feeder. The cardinal might well be No. 1 in a Charleston garden but not at a feed-tray attached to the trunk of a balsam tree in the Great Smokies of Tennessee and North Carolina.

It should not be overlooked that the feeding-station is important in relation to its results. Some are far more attractive to birds than others. Naturally, rural areas are more productive of birds at feeders than in cities, though it is surprising what birds are attracted to feeding stations in cities, especially during migration. Shrubbery, trees, proximity to bodies of water, acreage, lawns, all are considerations and all have their attractiveness to birds. Effects of weather, at times, play a part. Even small parks or open lots in a town of some size, not necessarily supplied with man-provided feeders, will show surprising bird visitors which might be increased with thoughtful provision. The writer well recalls the climax of a long period of drought in Clewiston, Florida, a town in the southwest corner of Lake Okeechobee, when limpkins and cattle egrets walked about in yards and gardens of the town, not attracted there by feeding stations, but the availability of their natural food. One might watch them, and see cardinals, ground doves, and yellow-throated warblers at a feeding-station not 50 yards away at the same time! An amazing situation, yes, but one induced by weather, which can happen anywhere and any time.

I am fortunately situated, at my home across the Ashley River from Charleston, South Carolina, in that this property is on a small peninsula surrounded on

When writing advertisers, please mention Audubon Magazine

# Balanced Diet For Birds

CONTAINED IN

## WINTER LIFE

WILD BIRD FOOD



*birds  
of  
all  
feather...  
all  
together  
flock  
to*



Available in  
5, 25, and 100 lb. bags.

Contains the pure seed that attracts and nourishes our favorite wild songbirds. Imagine! Just 2 of the 12 varieties of seed in Winter Life are the favorite of over 20 species. So you can be sure that every wintering songbird will find its preferred food in Winter Life. Contains balanced diet of proteins and fats for bird health that meets recommendations of bird-life authorities. All pure seeds used—no fillers.

Made conveniently available at your favorite Garden Supply, Seed, Hardware, Pet and Dept. Store. No mail orders.

**GARFIELD WILLIAMSON, INC.**  
1072 West Side Avenue, Jersey City 6, N. J.

three sides by salt marsh. It fronts on the Inland Waterway and has a growth of live-oak, loblolly, and long-leaf pine, wax myrtle, yaupon (cassina), magnolia, camellia, and azalea bushes—hence there is cover and we provide fresh water. Despite a growing population in the suburb where our home is situated it is still a good place for birds, definitely less so, however, in recent years. As proof of this statement, over the years I have lived on it, I have recorded 156 species of birds from the *one acre of land*. It is hardly necessary to add that not all of these birds were feeding-tray visitors.

For example, brown pelicans, royal terns, bald eagles, and wood storks are not to be expected at the feeder, but American and snowy egrets, willets, Hudsonian curlews, and great blue herons have secured food not 50 feet away from the feed-station!

Following are some of the birds which do frequent our feeding-station, with a reasonable degree of consistency, and ours can be considered as a representative station in coastal Carolina. It is hoped that our list, undoubtedly incomplete, will be of interest to others.

Other things being equal many bird attractors welcome brightly-plumaged birds at their feeders. Of course, surely the cardinal and painted bunting ("non-paniel" in the Southeast) stand at the top of the list with the possible addition of the blue jay.

One of the most brilliant displays the writer ever witnessed at a feeding-tray was in a garden in Clewiston, Florida on an April afternoon. There were three adult male painted buntings, four adult male indigo buntings, and a male cardinal on it at the same time! The sun, striking through on this kaleidoscope of color made an unforgettable picture.

The seed- and grain-eating birds are, of course, those which one can expect as "regulars." Hence, the bunting-finch-grosbeak-sparrow contingent is always predominant almost anywhere in the country, certainly in the Southeast. While some insectivorous birds do visit feeding-stations, they do not compare with the seed-eaters for obvious reasons. For example, the Carolina wren comes occasionally but never seems particularly interested. At my home, the long-billed marsh wren is abundant along the edges of the yard and nests only a few feet away in the cordgrass (salt marsh), yet I have never seen the bird at the feeder.

Similarly, the warblers are usually not at our feeding-station. Parulas, pine, and yellow-throated warblers nest in our yard but though the feed-tray may be populated by cardinals, red-winged blackbirds, and white-throated sparrows, the warblers ignore it. In winter, the adjacent live-oaks may be alive with

# Feed Your Favorites



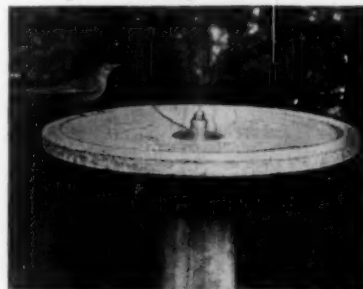
PATENTED

**Actual photograph of cardinal feeding**  
Designed to make the seeds in it accessible either to all birds, or only to cardinals, grosbeaks, chickadees, and certain others. Can easily be adjusted to exclude English sparrows. One filling lasts many days — seed fully protected from rain and snow — non-rust hardware — flow of seed is automatic — hulls kept out of seed hopper and also off your lawn — green baked enamel finish — a truly beautiful garden accessory.

**BEVERLY SPECIALTIES CO.**

10331 S. LEAVITT CHICAGO, ILL.  
FEEDER \$7.75 POST PAID  
STAND FOR FEEDER WITH  
ENAMELED SQUIRREL GUARD \$6.50

# Fountain Spray for Song Birds



**Portable Spray to set in Your Bird Bath**

Birds can't resist this rainbow mist — a unique portable unit which connects to hose outlet at house in a minute — permits independent use of garden hose — uses scarcely any water — adjusts from full rainbow mist down to 1/3 gal. per hr. — water always fresh — may also be used for gentle spraying of plants seedlings, or in greenhouse — solid brass, aluminum and stainless steel parts with 50 ft. miniature plastic hose — will not mark grass — longer hose available — makes your bird bath more useful and beautiful.

Price \$12.75 complete Post Paid

**BEVERLY SPECIALTIES CO.**

10331 S. LEAVITT ST., CHICAGO 43, ILL.  
Spray pedestal only, with 6 ft. miniature hose and fitting to connect to your garden hose but without independent valve feature \$6.95.

## E-Z FILL\*

### Wild Bird Feeder

No Metal to Injure Birds!

TWO SIZES

**\$2.00**

ILLUSTRATED  
9 1/2" x 10 1/2" x 9 1/2" ↓

Pat. No. 2,634,705

LARGE SIZE

**\$3.50**

ALL PRICES  
POSTPAID

\*Trade Mark Registered



E-Z to fill. Roof slides up on hanger for non-spill easy filling. Durable, weatherproof Masonite throughout — lasts for years. No nails or screws to rust or pull out. Visible food supply in automatic hopper. New patented hopper makes food available in worst snowstorms. Complete with hanger and hook. Assembled in one minute.

PACKED IN E-Z TO MAIL PACKAGE

Special rates to garden clubs  
Send check or money order to

**E-Z FILL BIRD FEEDER CO.**

P.O. Box 456 Riviera Beach, Florida

"Free catalog sent on request"

myrtle warblers and the feed-tray worked over by towhees, thrashers, and grackles, but no myrtle warbler pays any attention to it.

Florida (common) grackles and redwings sometimes really swarm about the tray while, curiously enough, the boat-tailed grackles, noisily present nearby, never descend to it. The wintering white-throated sparrows are certainly "regulars" daily but are much more likely to be seen foraging on the ground under the tray than on it. Here, they scratch away with abandon at the seeds,

"scratch-feed," or whatever else may have fallen there, or scattered about by birds actually on the tray itself. Towhees also search the ground beneath the feeder, and, to a considerable extent, so does the brown thrasher.

Starlings do both. There is an old dead pine stub on our place which I will not remove and, so far, hurricanes haven't either. It is riddled with holes in which starlings, red-bellied woodpeckers, and flickers nest annually, along with a pair of crested flycatchers. The starlings come to the tray and make frequent trips from it to the stub, but the flycatchers never do.

Woodpeckers are on the particular side. If there is suet provided they will visit the board-downy, hairy, and red-bellied woodpeckers. The "red-bellies" like citrus fruits and a halved orange is always acceptable. In this the mockingbird shares, but it is rather occasional at the tray.

One of the most satisfactory of boarders, but of very limited range in the Southeast, is the scrub or Florida jay. Living only in Florida\* and parts of Florida at that, it vies with chickadees in becoming so tame that human beings are used as perches about as freely as vegetation! Many food-tray providers in the Merritt's Island-Sarasota-Bradenton and other "scrub" areas of the state have had this crestless jay alight on their heads, arms, and shoulders seeking handouts.

Chickadees, as mentioned, will do much the same thing on occasion. Tufted titmice are tame enough in allowing close approach but are not as apt to display quite the fearlessness of the chickadee. Nuthatches like suet and peanut butter, wedged into the interstices of pine cones swung on a wire. The red-breasted nuthatch is a cold weather visitor in the Southeast, except in the mountains, and the brown-headed does not take to feeders. The white-breasted nuthatch is the species most likely to appear.

Wintering sparrows are typified by white-throated sparrows and juncos. Both are regulars, the white-throats even more than the juncos, at least in the coastal areas. Song sparrows are occasional visitors to the trays, perhaps more so in the interior and the Piedmont sections of the Coastal Plain. The ruby-throated hummingbird is, of course, a famous boarder when sugar-water is provided. Now and then a surprise will occur in the Gulf region when a wintering rufous hummingbird from the West appears, but people in the South Atlantic region see mostly spring and summer ruby-throats.

### PARK'S BIRD FEEDER



#### Windowsill Bird Feeder Kit

Combines the fun of assembling natural redwood pieces to make an 11" x 10 3/4" x 4 1/4" feeder. Complete with see-through glass top and perch . . . \$2.50.

**WES-PARK PRODUCTS COMPANY**

P.O. Box 2121, Needham Heights 94, Mass.

## Ardsley's St. Francis Feeder

This new St. Francis Feeder is made of Genuine California Redwood with large seed capacity (4 lbs.). The St. Francis Figure is a beautiful 8" porcelain figurine in full authentic color. A timely addition to any yard.

Feeder measures 15" high x 11" wide x 8" deep. Can be mounted on a tree or post. Price \$12.95 p. p.



**ARDSLEY WOODCRAFT, INC.**

263 Douglas Road, Staten Island 4, N. Y.

\* The "A.O.U. Check-List of North American Birds," Fifth Edition (1957) lists 12 other subspecies of the scrub jay which live mostly in the West and Far West.



One might think that the summer tanager would be a southeastern boarder when cut fruit is provided but in my experience in coastal Carolina, it rarely comes to the feeding-tray though it nests in my yard. Perhaps others have been more fortunate.

These "feeding station" birds will provide a cross-section of the "expected"

species at least. One thing is certain. The maintenance of a feed-tray is a never-ending pleasure and, with the comings and goings of the regulars, there is always the chance of the unexpected, and the appearance of a brand-new boarder whose presence will thrill all members of your household.—THE END

#### VALLEY OF THE FOSSIL INSECTS—Continued from page 225

nuthatches, red crossbills, and Steller's jays alighted in the scattered lodgepole pines—here in the open more widespread and bushy than elsewhere and known locally as "jack pines." The air above us was filled, from time to time, with the sweet music of mountain bluebirds calling and once, coming from the west, a golden eagle soared by, huge on outspread wings, a fit prototype for the Thunderbird of the Utes.

When Samuel Hubbard Scudder was bestowing scientific names on his Florissant fossils he christened one in honor of "the industrious entomologist of Colorado," T. D. A. Cockerell. Of all those who have explored among the shales of this mountain valley, without doubt the most remarkable was Theodore Dru Alison Cockerell. Born at Norwood, a suburb of London, on August 22, 1866, he was interested in natural history from childhood. His first scientific experiment, he recalled many years later, was to disprove the theory confided to him by a grown-up that yellow primroses planted upside down would come up pink. When his father died in his early thirties, young Cockerell went to work for a firm of flour merchants. Never robust, he contracted tuberculosis in the dusty atmosphere and, in the summer of 1887, at the age of 20, he sailed for America and the mountain climate of Colorado. It was this misfortune early in his long life—he died at the age of 81—that led him into the natural history of another continent and ultimately into the prehistoric world of Florissant.

Without specific training, without any academic degree until he was honored with a doctorate of science long after he had assumed a teaching position at the University of Colorado, this friend of Alfred Russell Wallace wandered through the fields of natural science with the glorious, unspecialized freedom of the old-time naturalists. He became recog-

nized as an authority on wild bees, scale insects, sunflowers, mollusks, and fish scales as well as on insect paleontology. Once while attending



#### SUET FEEDER by



#### another Wildlife bird attractor

- Weather resistant 3/4" redwood, natural.
- 13" high by 7" wide by tapered, button hole mount.
- Hardwood perches placed for birds of all sizes with proper tail feather support.
- Postpaid \$6.60. Will ship, and bill later.

WILDLIFE REFUGE, Box 487, East Lansing, Mich.



#### FEED THE BIRDS with a BOWER BIRD FEEDER

This attractively styled aluminum bird feeder keeps food dry and clean for all feathered friends—or attracts them if you are not already so fortunate. Colored gold by anodizing and black; with 3-section, five foot, cadmium plated steel post; tilting squirrel guard and clear plastic food container. Holds 2 lbs. feed; has 15 in. diam. roof. Complete, for yourself or that different gift.

Postpaid, for only ..... **13.50**

Also available for hanging, without post and guard. Postpaid, .....\$9.95



Post has metal step for easy insertion.

Satisfaction Guaranteed

**BOWER MANUFACTURING CO., Inc.**  
1021 South 10-F Goshen, Indiana



#### LURES WILD BIRDS TO YOUR WINDOW

Here is a quality product and a thoughtful gift that will last for years. Clip FLIGHT DECK to window sill and watch birds frolic JUST INCHES AWAY! Learn to identify wild birds, their songs, calls, markings, courtship, feeding habits, training of young, etc. FLIGHT DECK delights shut-ins, youngsters, and all bird lovers.

- Large 17"x15", green, white trim.
- Custom molded all-weather duralon.
- Hardwood perch rails, feeding stick.
- Four large seed wells and water pool.
- Instantly clips ON or OFF (no tools).

- Christmas gifts mailed as instructed.
- Shipped same day or date requested.
- Gift packed with card.
- All shipments insured.
- Money back guarantee.

**XMAS LIST SPECIAL**  
**SAVE! — Order 3 or more, Shipping Costs FREE!**

**duncraft**

Dept. A-1, Dunn Bldg., Penacook, New Hampshire

When writing advertisers, please mention Audubon Magazine



## Molded Fiber Glass BIRD FEEDER

Nothing like it. Practically imperishable. Will not rust, rot or deteriorate. Attracts the birds. All fittings are brass or aluminum. Beautiful appearance. 20" fiber glass top protects 12" fiber glass feed tray from weather. Large translucent fiber glass feed bin, easy to fill, supplies grain automatically. Ends squirrel nuisance. Hang from tree, or drive 5 ft. iron pipe into ground and slip brass mounting stem into it.

Only \$9.95 P.P. paid

Send check or money order. Shipments into Ohio, add 3% sales tax.

**THE ALJACK CO., Inc.**  
Carnegie Hall • Cleveland 15, Ohio

a banquet, Cockerell discovered a new species of insect on the bouquet of flowers set on the table before him. During his lifetime he contributed more than 3,500 papers to publications in many parts of the

**Attract Wild Birds NOW!**

With this Guaranteed  
**Automatic  
A-W Bird Feeder**

Attracts Wild Birds the year around. Sturdily built with plastic seed container 2 1/4" x 7". Hang anywhere.

**End Squirrel Nuisance...**  
with A-W's "Squirrel's Defeat" Feeder. Birds will feed from this feeder in complete safety. Made of sturdy materials.

**Free Folder.** Send name and address for complete folder.

Box 67  
**audubon workshop**  
Wander Lake, Ill.

**PATRONIZE  
AUDUBON MAGAZINE  
ADVERTISERS**

## This month...

and every month  
of the gardening  
year — read...

## Flower Grower

the Home Garden  
Magazine  
America's No. 1  
garden magazine.



For news, views, accents on gardens  
For budding, seeding, planting, arranging  
For watering, de-bugging, mowing, hoeing  
For landscaping, lawns and garden needs  
For bulbs, shrubs, tools and seeds  
For gardening pleasure — see offer below.

### MAIL YOUR ORDER TODAY . . . AND SAVE!

Flower Grower,  
The Home Garden Magazine  
Subscription Department ASM  
Albany 1, N. Y.

My remittance is enclosed

Name .....

Address .....

City and State .....

Orders accepted for U. S. A. and Canada only

☐ 6 BIG ISSUES FOR \$1.00

☐ 24 BIG ISSUES FOR \$3.50

world. Once he achieved the goal of producing a scientific paper during each of the 365 days of the year. He has been well described as one of the most versatile biologists America has known. Bronze plaques commemorating his work have been hung at the Museum of the University of Colorado and at the British Museum in London.

In 1890, when Scudder ended his Florissant studies, it was generally assumed that the Colorado shale beds had been worked out. Thus it was not until the summer of 1906 that Cockerell first visited them. He soon decided that the beds were almost inexhaustible. Year after year, he and his wife, Wilmatte Porter Cockerell, spent part of each summer exploring among insects of the remote past. During many of these expeditions, they found an average of a new species a day.

They unearthed a tsetse fly, long extinct on this continent, but in Africa still the dread carrier of sleeping sickness. They found the leaves of several wild roses and once, when they split open a layer of shale, they came upon a prehistoric rosebud. Their great hope, for years, was to discover a fossil butterfly. The only specimens known to the Western Hemisphere have come from Florissant. After years of searching they were returning to the village one day by a new path. They stopped to rest where a bit of shale protruded from a hillside. Mrs. Cockerell turned over a piece and there was the long-sought fossil, a butterfly so perfectly preserved that the spots were still apparent on the wings. Cockerell named it, in honor of its discoverer, *Chlorippe wilmatiae*.

In further studies of prehistoric

## PEMBERTON

### BIRD FEEDER

\$7.90 ppd.

Attractive combination seed and suet feeder of weather-proofed wood with plastic windows. Sturdy construction. Easy to fill. Tested many years. Money refunded if not completely satisfied. Circular on request.



**JARVIS BLUEBERRY FARM**  
Pemberton, N. J.



the permanent  
year-around  
bird attractor

- Lifetime service — with continued good appearance. Aluminum and glass, no rust.
- Easy to fill. Seed capacity for many days.
- Sanitary and clean. Cast aluminum feeding table.
- Rust-proof aluminum hood.
- Duraglas container. Adjustable ports for seed flow control.
- Mounts on 6 ft. length of 1 in. galvanized pipe.
- Protector cone shields against predatory animals.

Feeder No. 3 (shown) Capacity 2½ gallons .....\$27.50 f.o.b. factory  
Feeder No. 2 (same style) Capacity ½ gallons .....\$17.50 f.o.b. factory

Prices include feeder, squirrel shield in carton. (We suggest you get pipe locally. Add \$2.50 for pipe, if wanted.) Send no money. We bill you later. Circular available.

**WILDLIFE REFUGE**  
Box 487, East Lansing, Michigan



## Rowan's Rustic Feeding Station

Birds Love It

**\$5.95 Postpaid**

- Each feeder individually handmade from wood dipped in preservative. Lasts for years.
- Attractive rustic trim gives birds natural habitat "at home" feeling.
- Pyramid-shaped bar in floor center dispenses all feed, leaving none to mold. Feed supply visible through sloping glass sides.
- Easy to fill through chimney. Suet holders at one end. Generous proportions — 15" x 15" x 10" high.
- Available with chain to hang. Without chain to mount. State preference. No other items made.

**Rowan's Rustic Workshop**  
Conyers, Georgia

insects, Cockerell and his wife traveled to Argentina, to Europe, and to Siberia. Late in life, they journeyed up the whole length of Africa from Cape Town to Cairo. The interest they found in nature, and in the scientific exploration of it, expanded before them wherever they went. "The scientific man," Cockerell once wrote, "is always on the road, never at the journey's end."

The great collection of Florissant fossils that these two made is now housed in the Museum of the University of Colorado. When, later on, we visited this institution at Boulder, we saw spiders and earwigs and lantern flies, cicadas and back-swimmers, a wasp that resembled a yellow jacket, and a weevil with a slender snout, not unlike the beetles we find in roses today. A number of prehistoric leaves contained the swellings of insect galls and a small sheet of rock held the larval case within which a prehistoric caddis fly had lived in the shallow lake at Florissant. We were shown one fossil leaf from which little circular pieces had been cut, snipped out at least 10,000,000 years before by the jaws of a leaf-cutter bee. The preponderance of spring forms among the fossil insects contained in one layer of Florissant shale reveals the very season of the year when one of the volcanic eruptions occurred. All told, the Cockerell collection contains more than 200 type specimens, the original finds from which new species were described.

In our own search for a fossil insect, we continued to be disappointed. I discovered the fragment of a root. Nellie, my wife, found some kind of a small seed. We both uncovered bits of leaves and portions of twigs. Each time we sank the prospector's pick into the soft rock and pulled out a plate of shale to split apart and examine, we hoped to expose some insect of the Miocene. We tried hard to make insect wings from bits of leaf. But we were never completely convinced.

Then I found it! I inserted the thin blade of my jackknife carefully between two layers of gray shale. They fell apart. There, revealed where it had lain since before there were human eyes on earth to see it, was the clear form of a large crane fly. One of its wings was almost perfectly preserved. The other was par-

## 12 COURSE MEAL for WILD BIRDS!

## FOUR SEASON Wild Bird Food



Available in  
5 and 25 lb.  
bags.

Attract and save the lives of our songbirds this winter with the food they love best. Four Seasons Wild Bird Food is a mixture of seeds found to be preferred by the birds that come to your feeder. All airwashed and re-cleaned — pure seeds used only — no fillers.



**Wild Birds Love Four Seasons  
For each of these delicious reasons**

### — Menu —

Sunflower Seeds	Pure Milo Maize
Shelled Peanuts	Pure Cracked Milo
Pure Early Fortune Millet	Pure Buckwheat
Pure Yellow Millet	Pure Canary Seed
Pure Finch Millet	Pure Whole Wheat
Pure Kaffir	Pure Hulled Oats
Pure Sterile Hemp Seed	

Town & Country Products • Jersey City 6, N. J.  
Made conveniently available  
at your nearby Supermarket.  
No mail orders.



## "Priscilla" DELUXE BIRD FEEDER

Fully field-tested and endorsed by  
Bird-lovers and well fed birds.



**\$4.95**

Parcel Post Paid

Now packaged  
in Beautiful  
Color Box  
For Gift  
Giving.

Feeder pan and Hood made of clear anodized aluminum—cannot rust—Will last a housetime—See-thru polyethylene hopper shows feed level at all times—Holds hundreds of feedings—complete with 4-piece 5' steel pole.

Money back if not delighted.  
Send check or money order. No C.O.D.'s

**Manor Crafts**  
ELBERON, NEW JERSEY



*rustic pine*

## BIRD FEEDER

You'll keep feathered friends with you all year around! Serve "dinner" from this sturdy, easy to fill, feeder. Large grain bin eliminates frequent refilling. Suet holders, too. Shipped postpaid to you fully assembled. Size: 9" high, 11" wide and 14" long.

(Birds not included)

Send check or m.o., no COD's.  
Satisfaction assured. Please  
add 50c for delivery west of  
Mississippi.

**\$7.95**

**WONN**

P.O. Box 667 Dept. Z, Elkins, W. Va.

tially crumpled and damaged. In the long-ago days when it fluttered over the lakeshore among the sequoias and palms, the span of these wings must have been at least an inch and a half. We examined our prize over and over. There was the body and there the head and there the widespread, sprawling, stilt-like legs characteristic of all the crane flies.

We sat in great content under one of the pine trees that afternoon. We let our gaze wander over the pleasant scene around us, over the thin spires of the green gentians, over the tansy asters—still blue, still pungently aromatic when crushed—over the rose-pink cranesbill with its geranium-like bloom, over all the quiet beauty of these latter days of summer. Relaxed, we listened to the little sounds around us, to the flutter of the dancing grasshoppers and the low croon of the breeze among the pine needles. Immense cumulus clouds, snowy white in the sunshine, piled continually higher in the sky.

Just so, other clouds, black and tumbling and volcano-born, had once billowed up here. They had darkened the sky, bearing their burden of ash. We tried, as we talked, to reach back across the millions of years and visualize that day of destruction, the last day in the life of the crane fly. Then everything we now saw had been reversed. The sunshine had been extinguished. The day had been turned into night. The tumbling clouds were black instead of white. The clear air was choked with the endless, sifting fall of fine volcanic ash. Under its hardening mantle, the crane fly had slowly altered into fossil form. There it had remained unchanged through milleniums and eras, ages, and epochs, while mountain ranges rose and coast lines altered and ice ages came and went. And now, at last, on this late-summer day of sunshine, we had split open two sheets of shale and the crane fly within had returned once more to the world of light.

— THE END.

### BRUSH RABBITS—Continued from page 219

shedding of the pelage seems to bring a browner color.

Brush rabbits molt twice each year. In May and June there is very conspicuous change with a pronounced line of demarcation between the old pelage and the new. Often the new coat first appears on the nose and then spreads back over the head and body, but it may also spread from the rump or upward from the sides at the same time. In fall, the changes can not be so clearly seen, but the coat gets longer, denser, and fluffier.

During the warm summer months, between pelage changes, the bucks seem quite uninterested in the does, and all feed together on the rolled barley which I put out for them. But after the winter coat is acquired, the bucks become more aggressive, and then most does run away whenever a buck comes near. Brownie, believed to be the oldest doe living in my garden, sometimes will not run, but when a buck annoys her, she jumps over him and kicks down at him with her hind feet. Soon after this period, by December here in southern California, the breeding season starts, and then the bucks begin fighting. In one fight I observed, the animals were tumbling over and over, biting and raking each other

with their sharp claws, when suddenly one flew about two feet into the air, stretched out full length, with its hind feet pointing straight up. Whether it had jumped or was kicked upward by its opponent, I could not tell.

By the first of February, the babies of the first brood are out of the nest. They are still very small, and the mother hunts for each one in turn to let it nurse. Now, new foes beset them, especially predatory birds, some hunting by day and some by night. Hawks and owls feed on rabbits of all sizes, and roadrunners catch baby rabbits at every opportunity and either eat them or carry them away to feed to their nestlings. Because of the very small size of baby brush rabbits, even shrikes and jays are potential enemies.

To avoid their enemies, brush rabbits lead secretive lives. They inhabit brushy areas of the Pacific slope from the southern tip of Baja California northwest into Oregon. Never do they go very far from the cover of dense shrubbery, and they are then quick to retreat to it at the first hint of danger. In my garden, they come out into the open spaces and on the paths in evening and early mornings, or when the sky is overcast, but they move quickly into the bushes at any

When writing advertisers, please mention Audubon Magazine

AUDUBON MAGAZINE



# FEED THE BIRDS NOW! Try Beginner's Luck

PACKARD FEEDER and  
fill of Packard Bird Food  
\$2.50 postpaid  
Everything for Wild Birds  
Catalog free  
**WINTHROP PACKARD**  
Plymouth 3, Mass.

## WONDER WINDOW FEEDER

**HIGHLY EFFECTIVE**  
**Terrific Bird Attractor**



Fastens firmly on any pane of glass 10" x 10" or larger with durable rubber suction cups. Ideal for picture and storm windows because it brings the birds "inside" and foils squirrels and cats. Has unbreakable plastic windows, weather resistant roof and tray, pine frame and 2 perches. Holds over a pound of seed and suet. A year 'round delight for children and grownups alike. Only \$5.95, two for \$10.95, postpaid.

**WILLIAM GOADBY**

P.O. Box 88, West Redding, Conn.



## ENJOY BIRDS all WINTER...

**Keep  
Birdbaths  
ICE-FREE with an  
Automatic Water Warmer**

Safe: U/L and C.S.A. approved. Easy to use: place in water, plug in, forget it. Inexpensive: thermostat allows electricity to be used only when needed. Rustproof. No radio or TV interference. Guaranteed. Only \$6.95.

**The SMITH-GATES Corp.**  
**FARMINGTON, CONN.**

SMITH-GATES CORP., Farmington, Conn.

Send me .....water warmers @ \$6.95

Enclosed is \$ .....  
send postpaid.  
Send C.O.D. plus postage.

NAME .....

ADDRESS .....

CITY ..... STATE .....

unusual action on my part. This has made them very difficult to photograph—much more so than the cottontails that also frequent my garden.

Just as cottontails and brush rabbits are somewhat similar in appearance, so are they much alike in habits, but there are marked differences. They often feed side by side on the grass and clover of my lawn, and they browse alike on many shrubs, sampling a little here and a little there. Individuals will develop a habit of stopping to feed at some particular shrub at frequent intervals. After that rabbit has lived its life span and has disappeared from my garden, that one special shrub will not be eaten by other rabbits. Brush rabbits have one marked dietary difference from cottontails. They are very fond of berries, a food which I have never seen their larger relatives, the cottontails, eat in my garden. A brush rabbit will cut off a berry-laden twig of holly, firethorn, or privet, and carry this to the nearest rock on which it will sit while picking out the berries and eating them. Sometimes one will stand on the tips of its hind toes to reach up to a suitable branch. They are also fond of guavas and dried currants and raisins.

In their habit of perching on rocks, brush rabbits also differ from cottontails. If a cottontail happens upon a rock, it will go around it, but a brush rabbit will climb up on the rock or over it. I have seen them clamber up as much as four feet above the ground to get grain spread on a rock for the birds. Finding they were fond of grain, I started putting out rolled barley for them, and now quite a number of brush rabbits come regularly to my feeding station. Occasionally a cottontail will come for a little barley, but none has ever developed a regular habit of doing so.

As these brush rabbits line up to eat about five feet from me, I can watch them closely and note small differences between them. Brownie, a female, is the darkest brown in color and also has a minute indentation in the outer margin of each ear. These nicks are symmetrically placed and apparently are not the result of accident but may be inherited. None of the others is so marked. Split-ear has a quarter inch split in

*Continued on page 252*

## Swinging Suet Feeder



The Famous Dinah Dee Suet Feeder will bring birds galore to your backyard. Imported from France, the semi-collapsible wire basket is the perfect size for feeding wild birds. With each order of one or more, you get one suet cake FREE. Only \$1.95 each or 2 for \$3.75 and each additional mailed to you or a friend only \$1.50. Suet Feeder cakes, 3 for \$2.00 or \$7.00 per dozen. We prepay all postage. No COD's please.

**DINAH DEE**

Department 460

P.O. Box 6734 • San Antonio 9, Texas

## CONTROL YOUR FEEDING



Patented

**Keep out  
SQUIRRELS  
BLACKBIRDS  
SPARROWS  
and feed  
CARDINALS  
CHICKADEES  
& OTHERS**  
The  
Feeder operates  
**3-WAYS**

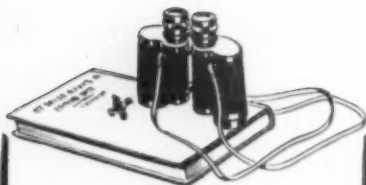
1. For CARDINALS and others the Pivoted Control Board is locked up as in the photograph.
2. For CHICKADEES, Nuthatches and other small birds the Control Board is Down, using the small opening. This is 99% SPARROW-PROOF.
3. For REMOTE CONTROL the Weighted Control Board, set to pivot freely, is held up by a Nylon line which connects with a Counterweight in the home. Surprisingly few drops are required to scare away, without injuring, undesired kinds of birds. This greatly increases use by desired kinds. Complete instructions. Return unused Control Parts for full credit if not satisfied.

The 100% SQUIRRELPROOF cone is attached by a flange to the feeder. The feeder makes an attractive lawn ornament and comes in a warm brown color varnished to withstand the weather.

Feeder Complete ..... \$11.75 ppd  
Feeder with Weighted Control Board only ..... 10.50 ppd  
Pipe—7 feet 1/2-inch threaded one end ..... 3.20 ppd  
(Suggest local purchase of pipe)  
Send check or M. O. No C.O.D.'s.

## 3-WAY BIRD FEEDERS

285 San Gabriel Drive • Rochester 10, New York



## THE PETERSON FIELD GUIDE SERIES

Here are the basic books and record album for your autumn field trips, the famous series that has revolutionized identification in the field. Originated and edited by Roger Tory Peterson, they are sponsored by the National Audubon Society and the National Wildlife Federation.

Birds	\$4.50
Bird Songs Album	\$10.95
Western Birds	\$4.50
Atlantic Shells	\$4.50
Mammals	\$4.50
Rocks and Minerals	\$4.50
Pacific Shells	\$4.50
Butterflies	\$4.50
British and European Birds	\$4.50
Animal Tracks	\$4.50
Ferns	\$4.50
Trees and Shrubs	\$4.50
Reptiles and Amphibians	\$4.50

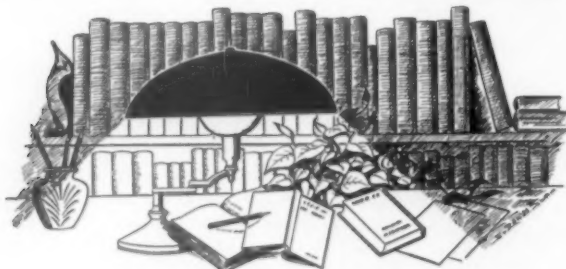
## A Natural History of New York City

BY JOHN KIERAN

"It is encyclopedic. Yet, at the same time, it is a rarely companionable book." *Edwin Way Teale, New York Times* \$5.75

Order any of the above from  
National Audubon Society  
1130 Fifth Avenue  
New York 28, New York

# BOOK REVIEWS



### OF NATURE, TIME AND TEALE

By Edward H. Dodd, Jr., Dodd, Mead & Company, New York, 1960. 8½ x 5¾ in., 63 pp. Illustrated. \$3.00.

By John K. Terres

There can be no finer compliment to the skills and knowledge of an author and naturalist than to be biographed by his own publisher. Mr. Dodd has contributed, not a loving portrait, but an admirable objective sketch of one of our foremost writer-naturalists. I have known Ed Teale personally for some 15 years, but this book has left me with the feeling that I now know him far better. It has also given me expert instruction in how a writer can organize his work so as to effectively combat that self-avowed nemesis of every writer—TIME. You will read of Teale's boyhood, his love for digger wasps (insects were his first love in natural history), his college years, his first job, photography and first writing efforts; his emancipation from a salaried job to become a free lance writer; the tragic loss of his only son, what constitutes a naturalist, and the way in which Teale plans his journeys in advance of writing his books. Mr. Dodd tells some wonderful anecdotes that help to reveal Teale's character, his experiences with people, and his philosophy of life and living. But in this book it is Teale's organization of his life in his fight against time that, as a writer, impressed me most—how he gathers the material for his books, his note-taking; record-keeping, and careful systematic observations that help to build his books. As Mr. Dodd has written—"Teale's work will be done despite time. He would like to see a Foundation set up that would dole out grants of time, time to work at the time of life, early, when time is most precious. 'My idea of heaven is a place where there is time for everything.'"

This is a small book—only 63 pages—and it is illustrated with 16 of Teale's superb photographs. It is a volume to be treasured by all who admire and love Teale's work.

Mr. Terres is a writer-naturalist and the author and editor of several books about natural history.

### THIS LAND OF OURS

By Alice Harvey Hubbard, The Macmillan Company, New York, 1960. 5½ x 8¼ in., 272 pp. No illustrations. \$4.95.

### THE EXPLODING METROPOLIS

By the editors of *Fortune*, Doubleday Anchor Books, New York, 1958. 4 x 7 in., paperback, 177 pp. Illustrated. 95¢.

### THE LAW OF OPEN SPACE

By Shirley A. Siegel.

### THE DYNAMICS OF PARK DEMAND

By Marion Clawson.

### NATURE IN THE METROPOLIS

By William A. Niering.

Publications of the Regional Plan Association, Inc., 230 West 41st Street, New York 36, New York, 1960. 8¼ x 11 in., 40 to 70 pp. Illustrated. \$3.50, \$3.00, and \$2.00, the latter special to Audubon members.

By Roland C. Clement

These books may at first glance seem strange bed-fellows but I feel they should be side by side on every conservationist's bookshelf. If you have been asking, "How can we preserve the character of our country?" you will find most of the answers at least outlined here. If you haven't asked yourself this question it is time you were alerted to one of our major problems.

Mrs. Hubbard's book is a thoroughly readable, enjoyable compilation of over 150 examples of local projects designed to solve problems of community neglect and resource use. They range from window-box contests and beautifying city streets to employing a community ecologist. Most of the important examples that professionals point to—the Brandywine story, the soil conservation district idea, the community forest approach—are described here. The emphasis is, properly, on the renewable resources, and on community improvement at the grass-roots, "for land's sake." This telling of what has been done at the local level is a tribute to thousands of good

Mr. Clement is membership director of the National Audubon Society.

Turn to Page 246

When writing advertisers, please mention Audubon Magazine

AUDUBON MAGAZINE



# Introduce your youngster to the marvels of the nature world



The prehistoric pterodactyl

## STRANGE STORIES from NATURE

5 thrilling volumes filled with true-life wonders

Buy each book separately, or take advantage of the money-saving offer below, and buy them as a set.



The blue-eyed shell that jumps



The shell with a poison dagger



The glass crab

The bird that walks on water



Here are the outstanding titles and a sampling of their contents

### STRANGE BIRDS

Birds that look like snakes. Four-legged birds. Birds that can't fly. Birds whose colors run. Birds that have vanished.

### STRANGE CREATURES OF THE SEA

Beautiful worms. Creatures that turn inside out. Living lights. The most ancient creature. The one-eyed brit. "Talking" lobsters. The missing link.

### STRANGE SEA SHELLS

How shells are made. Shells that build rafts. Shells that trap men. Shells with blue eyes. Shells with ten legs.

### STRANGE PRE-HISTORIC ANIMALS

The first animals. Sea serpents. The giant sloth. Dog-toothed reptiles. The bird-footed dinosaur. The king tyrant lizard. Man against the beasts.

### STRANGE CUSTOMS

Strange foods. Tattoos and taboos. Strange ideals of beauty. Men with wallets in their ears. Leopard men. Bouncing Eskimos.

Each book lavishly illustrated in color and black and white. Every volume complete in itself and fully indexed.



Now your child can learn all about the countless oddities of nature, from the prehistoric dinosaur to the tiny hummingbird. Here are all the world's strange beasts, shells, fish and insects—an endless variety of natural phenomena too wide, too extraordinary for any zoo or aquarium to hold.

### Nature at its most astounding—fully explained

Each intriguing subject is scientifically explained by eminent naturalist A. Hyatt Verrill in clear, lively language. Hundreds of illustrations in color and in black and white accompany the text. Give your children this exciting education in natural history. It will provide them with a fascinating window on the whole world of living miracles that surrounds them.

Only **\$3.95** per volume  
**SPECIAL MONEY-SAVING OFFER**

For a limited time only, you can have all five titles in the **STRANGE STORIES FROM NATURE** series—a veritable encyclopedia of nature's most amazing mysteries—for only \$15.75—a saving of four dollars!

Write today to L. C. Page & Co. Dept. NS-9, 101 Fifth Avenue, N. Y. 3, N. Y.



Strange partners



The four-legged bird



The tattooed Florida Indians

### 10 DAY FREE EXAMINATION

L. C. Page & Co. Dept. NS-9, 101 Fifth Avenue, New York 3, N. Y.

Gentlemen: I want the following books of the *Strange Stories from Nature* series:  
☐ STRANGE BIRDS ☐ STRANGE CUSTOMS ☐ STRANGE SEA SHELLS ☐ STRANGE CREATURES OF THE SEA ☐ STRANGE PREHISTORIC ANIMALS at \$3.95 per copy. I enclose my remittance for \$3.95 per volume postpaid. I understand that if I am not fully delighted with these books, I may return them within 10 days for refund of full purchase price.

☐ I want the whole set of five books as listed above on your special money-saving offer of all five books for only \$15.75, and I enclose my check. (New York City residents please add 3% sales tax.)

Name

Address

City  Zone  State

third printing —

# PENNS' WOODS WEST

By Edwin L. Peterson

Photos by Thomas M. Jarrett

The award and prize winning book on nature, wildlife, and conservation. Mr. Peterson's writing has been highly praised by leading persons in the fields of literature, nature, and conservation.

A beautiful gift to give to your best friend.

Available at National Audubon Society or your bookstore.

249 pp. more than 300 photos. \$15.00

UNIVERSITY OF PITTSBURGH PRESS  
Pittsburgh 13, Pa.

A journal of a year in the Adirondacks  
... as refreshing and exciting as a  
mountain stream — a startled deer  
— a rising trout

## ONE MAN'S PLEASURE

HUGH FOSBURGH



"He brings the  
country to life  
in full detail,

with unsentimental  
affection and a natural enthusiasm.  
One can read it anywhere with  
pleasure and satisfaction."

— Roderick Haig-Brown

Illus. by Walter W. Ferguson. \$4.00

— WM. MORROW & CO. —

citizens, an opportunity to profit from example, and an inspiration to do as much in each of our communities. To make sure you won't miss the value of these examples, Mrs. Hubbard has helpfully summarized them in an 11th chapter on procedure, a 12-point outline of how to go about it.

Whereas Mrs. Hubbard's book ranges widely across the country, the editors of *Fortune* have focused on the problems of cities in "The Exploding Metropolis." The cities are the core of the sprawling metropolitan regions, called by some megalopolis, which threaten so much countryside. This important small book explores the impact of the automobile on the city and the suburb, the new political realignments between city, state, and federal governments which are in the making, and includes one of the best short discussions of urban sprawl we know. It is an enquiry into a modern paradox: the threat prosperity poses to our real standard of living.

These two books thus show what can be done, and why it needs to be done. The new series of publications by New York's non-profit, citizen's agency, the Regional Plan Association, give the details and the ammunition we need to stir our neighbors and local politicians into action. It will not suffice to fume with moral indignation over the spreading blight which dismays us so. We need now to discipline our emotions, master the fundamentals of getting things done, and shoulder our citizen's responsibilities in a cooperative effort at improving our lot. Attorney Siegel's report provides examples of important legal precedents for preserving open spaces; economist and land-use authority Marion Clawson measures present and future demands for recreation and open spaces in the tri-state New York metropolitan region and in the nation; ecologist William Niering shows how much remains of these treasures even in the greatest metropolitan center in the nation, and appeals for "conservation on the urban doorstep." Audubon groups everywhere face a grave challenge here.

### THE NATURAL HISTORY OF THE SOUTHWEST

Edited by William A. Burns, Franklin Watts, Inc., New York, 1960. 9 x 12 in., 141 pp. Illustrated. Indexed. \$4.95.

By Gale Monson

This book in no way attempts to be a complete compendium of southwestern wildlife, as its title might lead a prospective reader to believe. Rather, it consists of interrelated but rambling

Gale Monson lives at Yuma, Arizona, where he is refuge manager in charge of the Kofa and Cabeza Prieta Game Ranges, and the Imperial National Wildlife Refuge, for the U. S. Fish and Wildlife Service.

sketches of by no means all of the area's plants, reptiles, birds, and mammals, and omits entirely its amphibians, arthropods, and insects.

Burns, who is Editor of the American Museum of Natural History's *Man & Nature Publications*, starts the book off with an essay titled, "The Story of the Southwest," in which he relates its natural features and resources to civilized man's occupation of the region. Separate articles follow, on trees, flowers, and shrubs, by Peggy Pickering Larson; on reptiles, by William H. Woodin and Mervin W. Larson; on birds, by Lewis Wayne Walker; and on mammals, also by Mr. Walker. These four authors are on the staff of the Arizona-Sonora Desert Museum, which is located near Tucson, Arizona.

More than half of the book's space is occupied by photographs, 107 black-and-white and 40 in color. Six of the latter are two-page spreads. The photographs run all the way from technically excellent to downright poor, and the same can be said of their reproduction. In fact, one wonders why some were included.

The Southwest is defined by Burns as consisting of Arizona and New Mexico, western Texas and Oklahoma, southern Utah and southern Colorado, and southwestern Nevada, and, by inference only, the desert portion of California. It is, then, rather disconcerting to find such non-southwestern forms of life as copperhead, water moccasin, brown pelican, California condor, sage grouse, osprey, whooping crane, and cormorant not only featured by photographs but treated in the text as well. This seriously detracts from the effectiveness of the book as a regional presentation.

### WANDERERS OF THE FIELD

By Eileen A. Soper, Routledge and Kegan Paul, London, England, 1959. 5½ x 8¾ in., 220 pp. Illustrated with drawings. Indexed. \$6.75.

By Helen Hoover

Miss Soper is a naturalist whose wildlife sanctuary encompasses not only her English gardens but also her house, where she is wakened by birds which fly in her bedroom window to feed from her hands. She is a tireless and meticulous observer of the birds, mammals, and

Mrs. Hoover is well-known to readers of *Audubon Magazine* through her articles about the wildlife of the northern Minnesota wilderness where she makes her home. Readers will remember her article about feeding and attracting wilderness wildlife called "Canteen for Forest Dwellers," *Audubon Magazine*, March-April 1960 issue, and her recent article about bats, titled, "The Flying Mammals," published in the July-August issue. Mrs. Hoover writes us that she majored in chemistry and minored in classic languages at Ohio University, became an editor, went on to metallurgy, and at the time she moved to the North Woods, was a research metallurgist for one of the big farm implement companies. She did work in the biological sciences at the University of Chicago which she says has served her well with the wild things of her wilderness home.

When writing advertisers, please mention Audubon Magazine

AUDUBON MAGAZINE

other creatures which come to her home grounds and which she meets in the fields and along the streams of the countryside. She becomes closely acquainted with her subjects and makes on-the-spot notes and sketches. The edited and correlated data from her notebook and sketch-pad make up this interesting and informative book.

The book is written with restraint and without sentimentality, but it does not lack warmth, wit, and compassion. It is always fair: the doings of badgers, which seem to be Miss Soper's favorite animals, and the acrobatics of gray squirrels, which are not particularly welcome at her sanctuary, are treated with equal understanding.

There are delightful discussions of the play of young things and unusual observations of the roosting of birds. There is the story of a young hedgehog that strays from its nest to take up residence in the warm ashes of a bonfire, and is returned eventually to its home. There are very complete accounts of the nesting of robins on a shelf in a little-used room, and of nuthatches, that chose boxes in the sanctuary. The affairs of mice and voles, tits and crossbills, toads, and many others are carefully and pleasantly recounted.

Miss Soper's drawings make the book something special. She has a perceptive eye and the ability to create vital and beautiful sketches. Her small animals seem ready to hop across the page, and her nestlings, to take flight.

In her opening paragraph Miss Soper says, "... the study of wildlife is never without compensation in those experiences of intimacy and beauty which come to all of us from time to time in the field."

In this book she has succeeded admirably in recreating these experiences. To those who have no opportunity to observe for themselves, it brings the feeling of a field trip. To those who have sanctuaries and who go into the field, it offers much information to supplement and corroborate their own observations and conclusion.

#### **BORN FREE: A LIONESS OF TWO WORLDS**

By Joy Adamson, Pantheon Books, New York, 1960. 9½ x 6½ in., 221 pp. Illustrated. \$4.95.

By Victor H. Cahalane

For most naturalists, few biographies of animals are successful. The author-owner is almost never objective, the facts are likely to be distorted and the writing emotional.

"Born Free" is a notable exception. It is a sensitive, yet factual, account of a lioness which was reared to adulthood in a human home and then trained to

take up a natural way of life. The author and "foster-mother" of the lioness is the wife of the Senior Game Warden in the Kenya (East Africa) Game Department. While not a trained biologist, her innate understanding of animals and long experience in a fascinating but often harsh land fitted her to write this book. Obviously, the experience and skill of her warden-husband in handling animals contributed materially to the success of the experiment.

Brought into the Adamson home when she was only two or three days old, "Elsa's" growing-up is vividly recorded. Taken on long walks by a Somali boy, and on long safaris by the Adamsons, she chased (for fun) antelopes, giraffes, warthogs and even rhinos and elephants. Until Elsa reached sexual maturity, she was afraid of other lions. She was affectionate, anxious to please her human family, and nearly always obedient. Rarely was she punished; occasionally she had to be chained to be kept out of mischief.

The author's account, which is only mildly anthropomorphic, is a major contribution to the natural history of the lion, and it sheds new light on the surprisingly high intelligence of the species. More than 100 excellent photographs document the text and add to the reader's enjoyment.

Against the backdrop of deserts and lakes, mountains and rivers, tropical woodland and arid veldt, there is frequent drama: the continuous battle of wildlife, man-eating lions, human poachers armed with rifles, and once, a bout with malarial madness.

The final portion of the book describes the year-long effort to train the fully grown, domesticated Elsa to sustain herself in the wilderness. This involved lessons in killing game (which at first she could not even tear open without help), two trips of some 400 miles each to game-rich areas without human settlements, and a carefully devised program of leaving the big cat "on her own" for successively longer periods. After months of limitless patience, the goal was attained: Elsa killed a bull buffalo "single-handed," and consorted with wild lions.

Remarkably, a year after the final separation from her human family, she still returned to greet the Adamsons whenever they visited her wilderness and signalled by firing a few shots. On such occasions, her demonstrations of affection prompted the author to think that "when she rubs her face against mine, she is trying to comfort me by saying in her own way: 'But I was born free.'"

Mr. Cahalane, Assistant Director of the New York State Museum, has studied and photographed lions and other wildlife in the national parks of Kenya. He has visited the locale of this book—Isiolo and the Northern Frontier District.

When writing advertisers, please mention Audubon Magazine

NOTABLE

NATURE BOOKS  
To Own and Give

### **WINDOWS IN THE WOODS**

By HEINZ SIELMANN. A naturalist's year of remarkable discovery in studying the life cycles of birds. Introduction by E. THOMAS GILLIARD, American Museum of Natural History. Illustrated with 64 superb photographs, 4 in full color.

\$4.95

### **FAMILIAR INSECTS OF AMERICA**

By WILL BARKER. Illustrated in color and black and white by CARL BURGER. An accurate, lively guide to the common insects of town and country — how they live and reproduce and their influence on other living things, ourselves included. \$4.95

### **FAMILIAR ANIMALS OF AMERICA**

By WILL BARKER. Illustrated with over 100 drawings by CARL BURGER. A handsome companion to *Familiar Insects of America*. "Ideal for young people as well as many older readers." —RACHEL L. CARSON. \$4.95

### **COMPLETE FIELD GUIDE TO AMERICAN WILDLIFE**

East, Central and North

By HENRY HILL COLLINS, JR. Identifies 1422 species of birds, mammals, reptiles, food and game fishes, etc. that occur regularly in the U.S. and Canada east of Rockies and north of the Carolinas and Oklahoma. 2,000 illustrations; 740 species in color. \$6.95. Deluxe edition, \$8.50

AT ALL BOOKSTORES  
HARPER & BROTHERS, N. Y. 16



## SUNNY DISPOSITIONS ON A RAINY DAY



*Photograph courtesy of Texas Game and Fish Commission.*

Students show how a miniature rainstorm washes bare soil away; how soil covered with grass, or other vegetation, is protected.

### An Audubon Camper is Thrilled with Her Discoveries:

"I just couldn't wait another day to write to tell you how much I enjoyed my two weeks at Audubon Camp. . . .

"As a mother I feel better equipped to help my children open their eyes to the world around them and to appreciate and evaluate that which 'God hath wrought'.

"As a teacher I cannot begin to tell you how the knowledge I have gained will enable me to bring a little of the outside world into the confines of a classroom. How challenging it will be to maintain sunny dispositions on a rainy school day by using that opportunity to talk about glaciers, snow, and how the rains play an important role in the food giving cycle of Nature. What a lesson on erosion this subject can introduce! And what better way to spend a rainy day in school?

"I have . . . come to realize the relationship between Man and Nature . . . and how important it is to preserve this relationship in order to preserve the world itself." Natalie P. Carnese 1960.

You too can share the excitement of discovery at an AUDUBON CAMP.

You too can learn to plan the kind of rainy day fun that you and your children will never forget.

PLAN NOW TO ATTEND AN AUDUBON CAMP IN 1961 • FOR ADULTS ONLY

NATIONAL AUDUBON SOCIETY, 1130 Fifth Avenue, New York 28, New York

Please send me information about your Audubon Camp in

California ☐

Connecticut ☐

Maine ☐

Wisconsin ☐

Name .....

Address .....

City..... Zone..... State.....

*When writing advertisers, please mention Audubon Magazine*

AUDUBON MAGAZINE

# Your

## CHILDREN

By Shirley Miller

THE count-down for "OPERATION FLOWER POT" at Port Washington, Wisconsin started over a year ago, at a meeting of the Library Audubon Junior Club. The first item of business at that meeting was a report of the vandalism that had befallen the club's Arbor Day plantings. The children also reported on the debris and litter left by visitors to Port Washington's beautiful parks and beaches bordering Lake Michigan. WHAT TO DO?

"Do not be overcome by evil, but overcome evil with good," suggested Mrs. Henry Blasing, the club leader, aptly quoting from Romans 12:21. "Let's use this ancient wisdom to combat our negative vandals and litterbugs with a positive plan. Let's think of something interesting and constructive—something beautiful." So the Audubon Juniors started thinking. Some reported on seeing a northern town where flowers had been planted along the city streets. Why not do this at Port Washington? All the children were enthusiastic, but they needed help to put the idea into action.

The first person approached was Mrs. Arthur Kelm, the librarian and a member

Bob Blasing (left), and Mark Kimball, members of the Library Audubon Junior Club, begin "Operation Flower Pot." Photograph by Verne Arendt.



of the Port Washington Garden Club. She arranged to have colored slides taken of the lightpole planters that the children had seen in that northern town. Then she and Mrs. Blasing set out on a campaign to show these slides to various town organizations, outlining the children's plan for similar lightpole planters for their business area. The organizations were also enthusiastic, and a member from each was appointed to compose a Central Committee to get "OPERATION FLOWER POT" airborne. The organizations included the Port Washington Association of Commerce, The Rotary Club, the Jaycees (Junior Chamber of Commerce), the Jayettes (the women's section of the J. C. of C.), the Senior Women's Club, the Junior Women's Club, the Port Washington Garden Club, and (naturally) the Library Audubon Junior Club, represented By Mrs. Blasing.

Seven meetings of this committee resulted in the following accomplishments.

The Mayor and City Council gave permission to install flower pots and flower boxes throughout the business area of Port Washington.

Formart Container Corporation donated 70 jumbo-size pots and 12 flower boxes for the project.

The State Bank and the National

Bank assumed the cost of brackets and holders for the flower pots and boxes.

The Vocational School students contributed their time and the aluminum paint to spray these brackets and holders.

Pink geraniums, pink petunias, and vinca vines for each planter were provided at cost by Port Gardens.

Eighteen members of the Library Audubon Junior Club went on safari to obtain soil for the planters aided by Mr. and Mrs. Vincent Bichler who also made their truck available to haul back the soil.

Members of the Port Washington Garden Club assisted the Library Audubon Junior Club in preparing this soil and planting the pots and boxes.

On Memorial Day weekend, 1960, the Jaycees turned out in full force to erect the brackets, holders, and the planted flower pots and boxes.

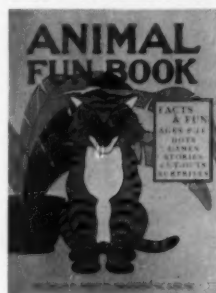
Inspired by the success of "OPERATION FLOWER POT," two Cub Scout packs extended this planting program by building and erecting flower planters beyond the limits of "OPERATION FLOWER POT."

The State Bank converted a vacant area between its building and the Wilson Hotel into a garden plot, planting this with evergreens, petunias, and geraniums.

Continued on page 250

## ANIMAL FUN BOOK

is for every child who loves animals. An activity book about all kinds of mammals, it is crammed with FACTS and FUN.



There are brief stories, puzzles, cut-outs, coloring pages, games and many other fascinating things-to-do for ages 8-14.

Nearly every fun activity is based on an interesting, and carefully researched, animal fact. All the animals are authentically illustrated.

### HOBBY FUN BOOK

has achieved wide recognition for its different approach to elementary science. It has sections on Care of Unusual Pets, Terraria, Air, Water, Chemistry, Electricity, and interesting Craft Work.

For ages 8-14.

Other fascinating books are Pencil Fun Book, Travel Fun Book, Puzzle Fun Book, Crossword Fun, Dot Fun.

All for ages 8-14.

All Seahorse Fun Books are large in size, 8 3/4 x 11 1/4", 112 to 128 pages, fully illustrated.

ONLY \$1.00 EACH

Send for complete descriptive folder.

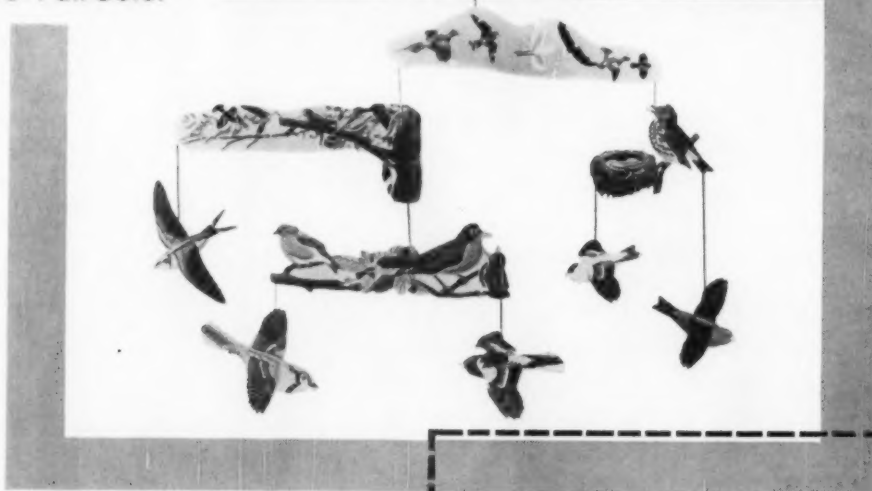
**THE SEAHORSE PRESS**

Pelham

New York

## BIRD MOBILE

Authoritative • Full Color



Fascinating mobile—21 American birds seem to fly in space! Designed by William Beecher of the Chicago Museum of Natural History, it measures 24" x 24" and suspends easily from the ceiling. Approved by the Association for Childhood Education International. Name, habitat and characteristics of every bird accompany each mobile.

**ORDER TODAY...Only \$1<sup>00</sup>**

### MODERN VISUAL AIDS

Dept. A 960 • 2319 Greenwood Ave., Wilmette, Ill.

Dept. A 960

### MODERN VISUAL AIDS

2319 Greenwood Ave., Wilmette, Ill.

Gentlemen: Please send me postpaid—Mobile(s). I include my check, money order or cash amount \$\_\_\_\_\_ (Sorry, no C.O.D. orders accepted)

Name\_\_\_\_\_

Address\_\_\_\_\_

City\_\_\_\_\_Zone\_\_\_\_\_State\_\_\_\_\_

# Bargains in BOOKS while they last

John and William Bartram's America, Edited by Helen Gere Cruickshank; Illustrated by Francis Lee Jaques.....	\$4.00
Birds of Maryland and District of Columbia (Paper) by Robert E. Stewart and Chandler S. Robbins.....	1.50
Birds Over America by Roger Tory Peterson.....	4.00
North American Birds of Prey by Alexander Sprunt, Jr....	3.50
An Introduction to Wild Flowers by John Kieran.....	2.00
A Paddling of Ducks by Dillon Ripley, Illustrated by Francis Lee Jaques.....	4.00
The Great Migrations by Georges Blond.....	3.50
Trees For American Gardens by Donald Wyman.....	5.00
Birds and Men by Robert Henry Welker.....	3.00
Tracks and Trailcraft by Ellsworth Jaeger.....	2.00
Insect Fact and Folklore by Lucy W. Clausen.....	1.75
The Bird Biographies of John James Audubon, selected and edited by Alice Ford.....	5.00
Florida Bird Life by Alexander Sprunt, Jr.....	9.75

## CHILDREN'S BOOKS

Billy Bass by R. W. Eschmyer (Bound) (8-12).....	\$ .90
Tommy Trout by R. W. Eschmyer (Bound) (8-12).....	\$ .90
Freddy Fox Squirrel by R. W. Eschmyer (Bound) (8-12)...	\$ .90

Reprints of the article, "NATURE AND MAN: THE TWO FACES OF MANAGEMENT," by Daniel McKinley, from *Audubon Magazine*, May-June 1960 issue, are available at 10 cents each.

*Service Department*  
NATIONAL AUDUBON SOCIETY, 1130 Fifth Ave., New York 28, N. Y.

The Central Committee was reorganized as the Port Washington Beautification Committee, with long-term plans to "keep Port Washington beautiful."

Benefitting by the expert planning and execution of "OPERATION FLOWER POT" on the part of the whole town, and the constant care given the plants by the Library Audubon Junior Club, the plants, themselves, responded by transforming the business area of Port Washington into one of the most beautiful regions in Wisconsin.

### ADDENDA

To date, vandalism is notable by its absence. So far only one flower pot is missing.  
—THE END

## BOOKS RECEIVED

### ALONG THE ALCAN

By George H. Atwood, Pageant Press, Inc., New York, 1960. Illustrated. 8 1/4 x 5 1/4 in., 212 pp. \$3.50.

An account of the completion of Alaska's Alcan Highway and the Canol Project.

### DESERT PLANTS

By Oliver and Margaret Leese, Transatlantic Arts, Inc., Hollywood-by-the-Sea, Florida, 1959. Illustrated. 5 1/2 x 8 3/4 in., 216 pp. \$7.50.

A world-wide description of cacti and succulents, in the wild and in cultivation.

### EBB AND FLOW

By Albert Defant, University of Michigan Press, Ann Arbor, Michigan. Illustrated. Indexed. 8 x 5 1/4 in., 121 pp. 1960. Paperback, \$1.95.

One of the fine series of the Ann Arbor Science Paperbacks. The tides of earth, air, and water.

### FUCHSIAS FOR ALL PURPOSES

By T. Thorne, Transatlantic Arts, Inc., Hollywood-by-the-Sea, Florida, 1959. 5 1/2 x 8 3/4 in., 175 pp. Illustrated. Indexed. \$7.50.

Indispensable reading for the fuchsia enthusiast. Every type of fuchsia, with cultural details, and an up-to-date list of all species, hybrids, and varieties.

### GARDEN WORK CENTERS

By the Editorial Staffs of *Sunset Books* and *Sunset Magazine*, Lane Book Co., Menlo Park, California, 1960. 10 3/4 x 8 1/4 in., 96 pp. Illustrated. \$1.75.

Lavishly illustrated, this book is a requisite for every home gardener.

### IN THE LAND OF THE QUETZAL FEATHER

By Friedrich Morton, Devin-Adair Company, N. Y., 1960. 5 1/2 x 8 1/4 in., 208 pp. Illustrated with drawings. \$4.50.

A rugged story of the struggle for survival in the Guatemalan jungle.



# Audubon Market Place

## CLASSIFIED ADVERTISING

Rates for classified advertising; 15¢ a word; minimum order \$3.00

### Binoculars—Telescopes—Microscopes

**7x35 BINOCULAR CHRISTMAS SPECIAL!** See our display ad on the first page. 3 full lines of binoculars and spotting scopes. **THE REICHERTS**, Mirakel Optical Co., Inc., Mount Vernon, 2, New York.

**WE'VE REPAIRED BINOCULARS** for Birders since 1923. Send for free reprint of our article "How to Check Alignment" published in Audubon Magazine. Mail binoculars to us for free instrument check and return mail estimate—4 day repair service on most jobs. **MIRAKEL OPTICAL CO., INC.**, 14 West First Street, Mount Vernon 2, New York. MO-4-2772. Open Saturdays 10-4. Thanksgiving till Christmas, other Saturdays 10-1.

**PROFESSIONAL HELP!** Museum Curator is franchised dealer for leading binoculars and telescopes. **ALL TYPES, PRICES. HIGHEST TRADE-INS.** Immediate answers. **POSTPAID. BARTLETT HENDRICKS**, Pittsfield 50-A, Massachusetts.

**HIGH QUALITY** but inexpensive 7x35 CF binocular, only \$27.50. New, improved model, with both standard and shallow eye-cups, \$31.50. Add 10% tax. **BARTLETT HENDRICKS**, Pittsfield 50, Massachusetts.

**AMAZING PRICES** prism binoculars, 22 models, \$15.25 and up. Fully guaranteed. Free trial. Folder, "Binocular Selecting," catalog free. Laboratory-medical microscopes also. **Prentiss Importers**, Mercury Bldg., West Los Angeles 25, Calif.

**BINOCULARS—REPAIR—RECONDITION—** Authorized dealers Bausch & Lomb, Zeiss, French and other imported brands. **Dell & Dell Opticians**, 19 West 44th Street, New York 36, N. Y. MU 7-2785.

**BINOCULARS REPAIRED** by expert craftsmen. Hard-coating eye cups replaced, all makes. We have optics to repair any make. Collimator alignment to Government specifications. Free check up and estimates, prompt service. Special rates to clubs. All work guaranteed. Binocular cases, any size \$3.00. **I. Miller**, 703 South Third Street, Philadelphia 47, Pennsylvania.

**EXPERT REPAIRS** on all makes of binoculars—Japanese, German, French, Bausch & Lomb, etc. Parts for almost every binocular regardless of its age. Free estimates, prompt service, all work guaranteed. Special price on binocular cases for 7 or 10 x 35 or 50, \$2.75 each. Established 1921. **Charles W. Mayher & Son**, 5 South Wabash Avenue, Chicago 3, Illinois. Phone Dearborn 2-7957.

**SWIFT BINOCULARS** at big discount. My advancements in this magazine have sold binoculars to many satisfied customers. Send for discount sheet and be another satisfied customer. Can sell 7 x 35 center focus \$24.95 delivered. Inquire about the 8.5x44. It is wonderful. **Charles A. Phillips**, 132 Lincoln Avenue, Syracuse 4, New York.

### Books

**BOOKS** on Birds, Mammals, Natural History subjects. New or out-of-print. Catalogs furnished. **Pierce Book Company**, Winthrop, Iowa.

**BOOKS** on Fish, Fishing, Birds, Animals, Nature. Request free catalog listing hundreds of new, used and rare books. **Sporting Book Service**, Hancoccs, N. J.

**NATURAL HISTORY BOOKS.** Entire libraries or small collections purchased at liberal prices. **Nada Kramar**, 927-15th Street, Northwest, Washington 5, D. C.

**WANTED—Books and Magazines** on Natural History subjects. Any quantity, fair prices paid. **R. RHODES**, 411 Davidson Street, Indianapolis 2, Indiana.

**BENT'S LIFE HISTORIES** of North American Nuthatches, Wrens, Thrashers and their Allies. Specially priced at \$5.75 postpaid. **HARVEY W. BREWER**, 279 Herbert Avenue, Closter, New Jersey. Books on Natural History Bought and Sold.

### Birdhouses—Feeders—Baths

**FISHNET SUET FEEDERS**—handnetted only in Maine, of strong fisherman's twine, 50¢ each postpaid. **SEA GARDEN SHOP**, Medomak, Maine.

**SAMPLE WREN HOUSE** or bird feeder one dollar each, postpaid. Guaranteed. Free wholesale literature. **GREENFIELD WOOD PRODUCTS**, Youngs Creek, Indiana.

**BIRD FEEDERS**—New Sturdy Roomy Bird Feeders, and Garden Shrubs. Painted or Clear Redwood. Many sizes. Write for pictured folders and prices, ten cents. **JOHNS HOMES FOR BIRDS**, 115 James Street, Beaver Dam, Wisconsin.

**MAKE YOUR OWN** feeders and wren house with our "YOU-DO-IT" Knock-down kits. Made of half-inch cedar which lasts indefinitely without paint. All hardware furnished. Complete instructions furnished. Easy to assemble. **HOBBY-FUN SEED FEEDER** and robin's nesting shelf \$3.00 postpaid. **HOBBY-FUN SUET FEEDER** \$3.00 postpaid. **HOBBY-FUN WREN CABIN** \$1.50. Either **FEEDER** and **WREN CABIN**—both for only \$3.50 postpaid. All three for only \$5.50 postpaid. **TAYLOR TRADING COMPANY**, White Lake, Wisconsin.

**BIRD BATHS NEVER GO DRY**—with constant level water supply. Automatically replaces water in bird baths, pet pans, kennel systems, etc. Easy to make. Plans, instructions, \$1.50. Local materials. Do-it-yourself, or will build to order. **F. W. HETRICK**, 11290 Wilson Road, Riviera Beach, Florida.

### Camping—Travel

**FAMILY STYLE VACATIONS** with hiking, swimming, fishing. Special programs for children and parents. Emphasis on Nature Study. California Sierra Nevada near Lake Tahoe and Desolation Valley Primitive Area. Write **Fallen Leaf Lodge**, Fallen Leaf, California.

**CAMP DENALI, MCKINLEY PARK, ALASKA**—A wilderness retreat in the Alpine sub-arctic for those wishing to exchange commercialized amusements for the genuine delights of nature. Special session for studying birds and plants of the tundra. Box 526, College, Alaska, for brochure.

**PISGAH FOREST INN.** Rustic Inn, 5,120 feet high, 629 feet below peak of Mt. Pisgah in National Forest. Panoramic view of mountains and valleys; foot trails, wild flowers, Flame Azalea, Mountain Laurel, Rhododendron, birds everywhere. Secluded, comfortable: Open Fires, private baths, delicious food in truly rustic setting. Restful, invigorating. May thru October. Tel. answering service. Asheville—Alpine 3-8771. P.O. Candler, North Carolina, Box 433, Route 321.

**CHASE'S ON TORSEY LAKE, READFIELD, MAINE**, offer 26 acres of beautiful, tree-bordered shores along the sparkling waters of peaceful Torsey. Widely spaced individual cottages provide privacy and enchanting views; central dining-room, finest home-cooked meals, recreational lodge, fishing, swimming, boating; while the surrounding forest and nearby marshes afford perfect cover for birds in their natural habitat. The diversified bird and plant life assures nature students a delightfully rewarding vacation at moderate costs. Booklet.

**ALLENTOWN MOTEL and CAFE** offers excellent accommodations, food; and, exceptional bird study opportunities in Ninepipe National Wildlife Refuge; 134 listed, plus many others in nearby mountains. Also deer, bear, goats. On U.S. 93, fifty miles north of Missoula, Montana, scenic route to Flathead Lake, Glacier National Park and Alaska. Write for list. **BOX 185, RONAN, MONTANA.**

### Color Slides—Films

**WILDLIFE OF ALASKA** 16 or 8mm movies, 35mm color slides: Walrus, sheep, caribou, moose, goat, bear, glaciers, Lake George Break-up, wildflowers, small animals, birds, sport fishing and Eskimo dances. **ELMER & LUPE KING**, Wildlife Photographers, Alaska Film, Box 5-621, Mt. View, Alaska.

**FREE** every month—Blackhawk's newspaper-size catalog 8mm., 16mm. movies, 2" x 2" color slides—wildlife, railroad, circus subjects. Biggest selection in USA. Bargains in used 16mm. sound films, projectors. **BLACKHAWK FILMS**, Davenport 6, Iowa.

**BIRDS OF INDIANA** in direct color. 2x2 projection slides from exclusive close-up photographs—used by students, instructors, clubs. Twelve slides, \$5.00. Twenty-five, \$10.00. Sample and list 50¢. **J. M. Stemen**, Goshen, Indiana.

**NATURE SLIDES.** Western birds, animals, insects, flowers, sunsets, minerals, geology. Full color. 25¢ brings sample, credit slip and catalog. **SCOTT LEWIS**, 1338 Buena Vista, Palm Springs, California.

**KODACHROME SLIDES OF BIRDS.** One of the world's best collections: over 1,500 beautiful full color photographs of over 500 species of North American birds—close-up. Dr. A. A. Allen's unique collection available for your use. Singly or in sets. Please write for catalogue to **DAVID G. ALLEN**, 23 Sapsucker Woods Road, Ithaca, New York.

### Nurseries

**BABY EVERGREENS**, seeds, seedlings, rhododendron, azaleas, flowering shrubs, shade trees, large assortment of rare and standard plants. Catalog free. **GIRARD NURSERIES**, Geneva, Ohio.

**NURSERY GROWN WILDFLOWERS** for Gardeners, Nature Lovers. Send 10¢ for catalogue. **JAMIESON VALLEY GARDENS**, Route 3, Box 648-D, Spokane, Washington.

### Wildlife Recordings

**SOUNDS OF NATURE:** Produced by the Federation of Ontario Naturalists and now available in USA. Volume 4 **WARBLERS** Volume 6 **FINCHES:** Catalogue from **FON Edwards Gardens**, Don Mills, Ontario, Canada.

### Miscellaneous

**HUMAN-ANIMAL RELATIONSHIP.** \$2.00 for one year. \$3.50 for two years. \$5.00 for three years. Published quarterly. **OUR PET WORLD**, 240 West 75th St., New York City 23.

**"GEMS & MINERALS MAGAZINE,"** largest rock hobby monthly. Field trips, "how" articles, pictures, ads. \$3.00 year. Sample 25¢. Box 687L, Mentone, California.

**BACKWOODS JOURNAL**—Simple living in the world of nature. \$1.00 year, 20¢ copy. **LOG CABIN LIFE**, Old Forge 4, New York.

**FIELD MEN—STUDENTS—LANDOWNERS.** Our practical training programs in Forestry-Wildlife-Soil Conservation through supervised home study will equip you with technical skills needed on the job. Special field training and placement service for career students. Write Dept. "F", **NATIONAL SCHOOL OF FORESTRY AND CONSERVATION**, Wolf Springs Forest, Minong, Wisconsin.

**UP TO \$300 extra money.** Show friends fabulous self-selling **EVANS Christmas Card**, Gift Line. Profits to 100%. Send no money—write for sample boxes to be paid for or returned, plus big Free Album Personalized Cards, 2 Catalogs 300 items. **NEW ENGLAND ART PUBLISHERS**, North Abington 983, Massachusetts.

**WHITTLED WOODEN BIRDS.** Painted in oils. Robin, bluebird, goldfinch, tanager, kinglet, chickadee. 1¼ inch, \$1.25; 3¼ inch, \$3.25. Postpaid. Complete with base. Use in flower arrangements, on driftwood, etc. **JAMES EUBANKS**, 426 Riverside, Knoxville 15, Tennessee.

**RUN A SPARE-TIME Greeting Card and Gift Shop** at home. Show friends samples of our new 1960 Christmas and All Occasion Greeting Cards and Gifts. Take their orders and earn to 100% profit. No experience necessary. Costs nothing to try. Write today for samples on approval. **REGAL GREETINGS**, Dept. 12, Ferndale, Michigan.

**HANDMADE CHRISTMAS CARDS**, with birch-bark and cedar—\$1.00 dozen. Woodland Wildlife Notepaper, special assortment: 24 sheets, envelopes, 18 designs, 8 colors, 3 styles—\$1.00. **HOOVER HANDCRAFT**, Grand Marais, Minnesota.

**BIRDS CARVED OF WOOD** painted natural color. Very lifelike, any size. For prices and details, write **CLEM WILDING**, Berger, Missouri.

**STAMP COLLECTORS!** 25 different French Colony stamps, 10¢. Attractive selection of foreign approvals accompanied by **PHILATELISTS**, 4524 Montview Boulevard, Denver 7, Colorado.

Turn to next page



## Audubon Nature Bulletins FOR ADULTS

Written by authorities in various  
fields of natural history

Illustrated with excellent line  
drawings and beautiful photo-  
graphs

OWLS AS PREDATORS  
STORY OF OWLS  
OUR FRIENDS THE HAWKS  
BIRD NESTS  
BIRD MIGRATION

All five — 50 cents  
(plus 5¢ postage and handling)

Audubon Nature Bulletins  
1130 Fifth Avenue, New York 28, N. Y.

## W. J. Breckenridge

Museum Director  
and  
Audubon Screen  
Tour Lecturer

# Says



"The competitive side of bird watching appeals to many field observers making it something of a game of ornithological golf. Audubon Field Notes gives you the other fellows' scores. And the more critical researcher finds in Audubon Field Notes a great deal of field data assembled in one place and screened for authenticity by regional editors as well as by the Audubon and U.S. Fish and Wildlife editorial staffs."

## Audubon Field Notes

### SUBSCRIBE TODAY!

Subscription for one year..... \$3.00  
For two years..... 5.50  
For three years..... 7.50

(Separate copies of April issue—  
Christmas Bird Count \$2.00)

1130 Fifth Avenue, N. Y. 28, N. Y.

### CLASSIFIED Continued

**ROCKHOUND BEGINNERS ILLUSTRATED CATALOG.** Various standard and specialized study collections. Kits, manuals, field guides, blacklights, lapidary equipment and general accessories for beginners, 25¢. **MINERAL LORE**, 3064 Park Avenue, San Bernardino 4, California.

**FOR RENT:** (to **GOOD HOUSEKEEPERS!**) Completely charming, furnished, two-bedroom house; separate studio, workshop, horse-barn; in beautiful 6½-acre canyon-woodland-stream-meadow sanctuary. **PECK**, 7886 Mission, Colma, California.

**COLLECTORS ITEM.** For your glass collection or breakfast table. Hand-blown blue glass cream and sugar set from far away Mexico. A delightful gift. The set only \$2.50. California residents add 4% state tax. **READ'S IMPORTS CA**, Box 21, Whittier, California.

**PINE CONES.** Natural forest cones. Free booklet pictures tiny species to foot long. Unusual all-cone wreaths; evergreens, too. **WESTERN TREE CONES**, Corvallis, Oregon.

**CHRISTMAS DECORATIONS.** Write for free folder on Wreaths, Centerpieces, Trees and Roping by Maine's Leading Florist. **M. A. CLARK, INC.**, Park Street, Ellsworth, Maine.

### BRUSH RABBITS—Continued from page 243

the tip of her left ear; Bright-eyes has eyes that are always sparkling, and she has her own way of approaching the food with her body stretched out long and with both ears turned forward.

Head Man is an old buck, and The Sheik is a young one born and reared this year. This youngster was from an early brood. By the time he was three months old and about half grown, he was already chasing the does. The Tamest One is a little doe with nothing special about her appearance but recognizable by her actions. She is the only one that does not run into the shrubbery when I am moving about. Big Girl is larger than any of the others, and her color is lighter and more yellowish, somewhat like that of the cottontails. Possibly she is part cottontail, for with two such closely related species living together, it would be surprising if hybridization did not occur.

Much happiness do these little

animals bring to me as they live their lives so freely in my garden. Far better than caged pets are they, and far less trouble. Some few seem always to be in my garden, others shift about. These may be here a few days, and then I may not see them for a time. Presently they are back again. Some of the cottontails wander out and get killed by automobiles on the road in front of my place, but not so with the brush rabbits. Their tendency to get into the brush and stay there whenever there is any suspicious noise or movement keeps them out of the paths of cars. Very few foes, comparatively, do adult brush rabbits have in my garden, and their life expectancy here is greatly increased. Brownie, I feel sure, is at least four years old, and she still seems to be in her prime. May she and her tribe continue to flourish along my garden paths as long as my feet shall tread them!

THE END

### OUR AMERICAN STORK—Continued from page 234

fornia storks. Our friends there report a shortage of wood storks in that country. Only through banding or other marking techniques will we be able to trace such population movements. We have made a modest start in this direction.

We have not, as yet, been able to determine at what age wood storks attain adult plumage and start to breed, nor do we know much about their longevity or normal mortality. Recoveries of banded birds should help give information of this kind.

One of the most serious problems facing the wood stork today, shared with other waders, is the steady decline in available nesting sites and feeding grounds. Of the 14 sites in use by storks during this past season only three of them are under permanent protection. Of these three, two are in the Everglades National Park and the other in the Society's Corkscrew Swamp Sanctu-

ary. The remaining 11 are in the hands of persons more interested in real estate development than in storks. The Florida Audubon Society has been doing good work in arousing an interest in storks by owners on whose land storks are breeding. Several owners have entered into agreements with the Florida Audubon Society and have posted the colonies. This helps to enlist public opinion on the side of the storks. It would be very desirable to have more of the regular nesting sites and most important, some good feeding grounds protected for future generations of storks.

Our wood storks are on the increase again following several years of sufficient rainfall. Let's be sure that our new knowledge is used to make certain that they will be soaring high in the blue for a long time to come.

—THE END

When writing advertisers, please mention Audubon Magazine

AUDUBON MAGAZINE

# Presenting

## YOUR SPEAKERS ON THE AUDUBON SCREEN TOURS



William A. Anderson  
Homestead, Florida



Alfred M. Bailey  
Denver, Colorado



Walter J. Breckenridge  
Minneapolis, Minnesota



B. Bartram Cadbury  
Farmington, Connecticut



G. Clifford Carl  
Victoria, B.C., Canada



Allan D. Cruickshank  
Rockledge, Florida



Alfred G. Etter  
East Lansing, Michigan



William Ferguson  
Omaha, Nebraska



Bristol Foster  
Toronto, Canada



Cleve and Ruth Grant  
Mineral Point, Wisconsin



Fran William Hall  
Northfield, Minnesota



Leonard Hall  
Caledonia, Missouri



Bert Harwell  
Berkeley, California



Robert C. Hermes  
Homestead, Florida



Charles T. Hotchkiss  
Homestead, Florida



Edgar T. Jones  
Edmonton, Alberta, Can.



Chester P. Lyons  
Victoria, B.C., Canada



Eben McMillan  
Cholame, California



Karl H. Maslowski  
Cincinnati, Ohio



Charles E. Mohr  
Philadelphia, Pa.



Kenneth Morrison  
Lake Wales, Florida



John Moyer  
Chicago, Illinois



Howard I. Orians  
Madison, Wisconsin



Roger Tory Peterson  
Old Lyme, Connecticut



Olin S. Pettingill  
Wayne, Maine



Worth Randle  
Cincinnati, Ohio



George Regensburg  
Trenton, New Jersey



Laurel Reynolds  
Piedmont, California



Emerson Scott  
Caro, Michigan



Alexander Sprunt, Jr.  
Charleston, So. Carolina

OVER 1000  
FILM-LECTURES  
PRESENTED  
IN 200  
COMMUNITIES



John E. Taft  
Ventura, California



Patricia B. Witherspoon  
Denver, Colorado



Albert J. Wool  
La Honda, California

For information write:

The Director,  
Lecture Department  
National Audubon Society  
1130 Fifth Avenue  
New York 28, N. Y.



# Audubon Christmas Card for 1960



DRAWN FROM NATURE BY J. A. AUDUBON, F.R.S., F.L.S.

*White-winged Crossbill*  
LOXIA LEUCOPTERA GM  
Male adult, 1. 2. Female adult, 3. Young, F. 4.  
New Foundland alder.

A reproduction in full color of John James Audubon's plate #364 White-winged Crossbill has been selected for this year's Christmas Card. The green leaves of the New Foundland alder and the red birds bring to this card the Christmas coloring.

The cards measure 5" x 7"  
— 20 cents each — 10 for \$1.75  
— 25 and any quantity over, 15 cents each. Envelopes included.

The message reads:

Christmas Greetings and all  
Good Wishes for a Happy New  
Year."

We regret to say that we cannot  
take orders for imprinting names.

Please add 25 cents for orders  
under \$5.00 and 50 cents for orders  
over \$5.00 for postage and handling.

## FROM 1959

*First come! First served!*

There are some of the 1959 cards available, picturing a saw-whet owl in white pine in full color by Don R. Eckelberry.

Cards measure 5" x 7". 15 cents each for any quantity. Envelopes included.  
Postage rates and message as stated above.



*Service Department*

NATIONAL AUDUBON SOCIETY, 1130 Fifth Ave., New York 28, N. Y.

